

## 4th Grade Mathematics

<b>Curriculum/Content Area: Mathematics</b>	<b>Course Length: School Year</b>
<b>Course Title: 4th Grade Mathematics</b>	<b>Date last reviewed: February 2nd, 2016</b> <a href="#">Previous 4th Grade UBD</a>
<b>Prerequisites: NA</b>	<b>Board approval date: TBD</b>
<b>Primary Resource:</b> Bridges in Mathematics	

## Desired Results

**Course description and purpose:** This framework for improving student learning focuses on high-quality math standards. It provides teachers with a clear set of math concepts and skills for students to understand and be able to do by the end of the school year.

Mathematical Practice Standards		
<p>The Standards for Mathematical Practice are central to the teaching and learning of mathematics. These practices describe the behaviors and habits of mind that are exhibited by students who are mathematically proficient. Mathematical understanding is the intersection of these practices and mathematics content. It is critical that the Standards for Mathematical Practice are embedded in daily mathematics instruction.</p>		
Mathematical Practice Standards	Grade Level Explanation	
Habits of Mind	MP.1 Make sense of problems and persevere in solving them	Fourth graders know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it.
	MP.6 Attend to precision.	Fourth graders develop their mathematical communication skills, use clear and precise language in their discussions with others and in their own reasoning, are careful about specifying units of measure and state the meaning of the symbols they choose.
Reasoning & Explaining	MP.2 Reason abstractly and quantitatively.	Fourth graders recognize that a number represents a specific quantity. They connect the quantity to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities. They extend this understanding from whole numbers to their work with fractions and decimals.

	MP.3 Construct viable arguments and critique the reasoning of others.	Fourth graders construct arguments using concrete referents, such as objects, pictures, and drawings. They explain their thinking and make connections between models and equations. They refine their mathematical communication skills as they participate in mathematical Discussions. They explain their thinking to others and respond to others' thinking.
<b>Modeling &amp; Using Tools</b>	MP.4 Model with mathematics.	Fourth graders experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They evaluate their results in the context of the situation and reflect on whether the results make sense.
	MP.5 Use appropriate tools strategically.	Fourth graders consider the available tools when solving a problem and decide when certain tools might be helpful. For instance, they may use graph paper or a number line to represent and compare decimals and protractors to measure angles.
<b>Seeing Structure &amp; Generalizing</b>	MP.7 Look for and make use of structure.	Fourth graders look closely to discover a pattern or structure. For instance, students use properties of operations to explain calculations. They relate representations of counting problems such as tree diagrams and arrays to the multiplication principle of counting. They generate number or shape patterns that follow a given rule.
	#8 Look for and express regularity in repeated reasoning.	Fourth graders notice repetitive actions in computation to make generalizations. They use models to explain calculations and understand how algorithms work. They also use models to examine patterns and generate their own algorithms.

### Priority Standard Clusters

#### 4.OA.A Use the four operations with whole numbers to solve problems.

- 4.OA.1 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.
- 4.OA.2 Multiply or divide to solve word problems 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.

- **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.NBT.A Generalize place value understanding for multi-digit whole numbers.**

- **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  $700/70 = 10$  by applying concepts of place value and division.
- **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 greater than, less than, and equal symbols to record the results of comparisons.
- **4.NBT.3** Use place value understanding to round multi-digit whole numbers to any place.

#### **4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.**

- **4.NBT.4** Fluently add and subtract multi digit whole numbers using the standard algorithm.
- **4.NBT.5** Multiply a whole number (up to) a 4-digit number by a 1-digit number using strategies based on place value and the properties of operations, and multiply two 2-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the multiplication calculation using equations, rectangular arrays, and/or area models.
- **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, arrays, and/or area models.

#### **4.NF.A Extend understanding of fraction equivalence and ordering.**

- **4.NF.1** Explain why a fraction  $a/b$  is equivalent to a fraction  $(n*a)/(n*b)$  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.
- **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  $1/2$ . 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.

#### **4.NF.B Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.**

- **4.NF.3** Understand a fraction  $a/b$  with a  $a > 1$  as a sum of fractions  $1/b$
- (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.
- (c) Add and subtract mixed numbers with like denominators eg by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction.
- **4.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- (a) Understand a fraction as  $a/b$  as a multiple of  $1/b$ .
- (b) Understand a multiple of  $a/b$  as a multiple of  $1/b$  and use this understanding to multiply a fraction by a whole number.
- (c) Solve word problems involving multiplication of a fraction by a whole number eg by using visual fraction models and equations to represent the problem.

**4.NF.C Understand decimal notation for fractions, and compare decimal fractions.**

- **4.NF.5** Express a fraction with a denominator 10 as an equivalent fraction with a denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
- **4.NF.6** Use decimal notation for fractions with denominators of 10 and 100.
- **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  $>$ ,  $=$ ,  $<$  and justify the conclusions by using a visual model.

**Supporting Standard Clusters****4.OA.B Gain familiarity with factors and multiples.**

- **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.OA.C Generate and analyze patterns.**

- **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.

**4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.**

- **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 a smaller unit. Record measurement equivalents in a 2-column table.
- **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.
- **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.MD.B Represent and interpret data.**

- **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.

**4.MD.C Geometric measurement: understand concepts of angle and measure angles.**

- **4.MD.5** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
- **4.MD.6** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- **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, e.g., by using an equation with a symbol for the unknown angle measure.

**4.G.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.****Cluster Number (space) Name of supporting math cluster.**

- **4.G.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in 2 dimensional figures.

- **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.
- **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.

## Unit 1 - Multiplicative Thinking

**Unit Overview:** This unit is a study of multiplication and division, focusing in particular on models, strategies and multiplicative comparisons.

### Unit Standards

#### Priority Standards

##### **4.OA.A Use the four operations with the whole numbers to solve problems.**

- **4.OA.1** 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.
- **4.OA.2** Multiply or divide to solve word problems 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.

#### Supporting Standards

##### **4.OA.B Gain familiarity with factors and multiples.**

- **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.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.**

- **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 a smaller unit. Record measurement equivalents in a 2-column table.

#### 3rd Grade Priority Standards - Reviewed in Unit

##### **3.OA.A Represent and solve problems involving multiplication and division.**

- **3.OA.1** Interpret products of whole numbers, e.g., interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as  $5 \times 7$ .
- **3.OA.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
- **3.OA.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations  $8 \times ? = 48$ ,  $5 = ? \div 3$ ,  $6 \times 6 = ?$ .

##### **3.OA.B Understand properties of multiplication and the relationship between multiplication and**

**division.**

- 3.OA.5 Apply properties of operations as strategies to multiply and divide. Examples: If  $6 \times 4 = 24$  is known, then  $4 \times 6 = 24$  is also known. (Commutative property of multiplication.)  $3 \times 5 \times 2$  can be found by  $3 \times 5 = 15$ , then  $15 \times 2 = 30$ , or by  $5 \times 2 = 10$ , then  $3 \times 10 = 30$ . (Associative property of multiplication.) Knowing that  $8 \times 5 = 40$  and  $8 \times 2 = 16$ , one can find  $8 \times 7$  as  $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$ . (Distributive property.)

**3.OA.C Multiply and divide within 100.**

- 3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ ) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

**3.MD.A Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.**

- 3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
- 3.MD.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). 6 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

**3.MD.C Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**

- 3.MD.7 Relate area to the operations of multiplication and division.
  - (a) Find the area of a rectangle with whole number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths.
  - (b) Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning.
  - (c) Use tiling to show in a concrete case that the area of a rectangle with whole number side lengths  $a$  and  $b + c$  is the sum of  $a \times b$  and  $a \times c$ . Use area models to represent the distributive property in mathematical reasoning.
  - (d) Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

**Learning Targets**

**4th Grade Priority:**

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1, 3</li> <li>• Module 3 Session 2-4</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>• Module 2 Session 2, 6</li> <li>• Module 4 Session 2-3</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>• Module 1 Session 2-3, 5</li> <li>• Module 2 Session 1</li> <li>• Module 3 Session 1-4</li> <li>• Module 4 Session 1</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1, 2, 6</li> <li>• Module 3 Session 1, 3</li> </ul>
<b>Modeling &amp;</b>	<b>MP.4</b>	<b>MP.5</b>

<b>Tools</b>	<ul style="list-style-type: none"> <li>• Module 1 Session 4, 6</li> <li>• Module 2 Session 1, 5</li> <li>• Module 3 Session 3</li> <li>• Module 4 Session 2</li> </ul>	<ul style="list-style-type: none"> <li>• Module 1 Session 4</li> <li>• Module 2 Session 4</li> <li>• Module 4 Session 1-2</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b> Module 1 Session 2, 5 Module 2 Session 3-6	<b>MP.8</b> <ul style="list-style-type: none"> <li>• Module 1 Session 2</li> <li>• Module 4 Session 3</li> </ul>

**4th Grade Priority:**

- I compare factors and products in a multiplication number sentence. (4.OA.1)
  - Module 1 Session 1: Setting Our Course for the Year
  - Module 1 Session 3: Unit 1 Pre-Assessment
  - Module 1 Session 4: Methods & Models for Multiplication
  - Module 3 Session 2: Multiplication & Division Checkpoint
  - Module 3 Session 3: Multiplicative Comparisons with a Giant
  - Module 3 Session 4: Introducing Work Place 1F Dragon's Gold
- I multiply or divide to solve word problems involving multiplicative comparison by using drawings or writing equations with a variable. (4.OA.2)
  - Module 1 Session 1: Setting Our Course for the Year
  - Module 1 Session 2: Number Lines
  - Module 1 Session 3: Unit 1 Pre-Assessment
  - Module 1 Session 4: Methods & Models for Multiplication
  - Module 3 Session 2: Multiplication & Division Checkpoint
  - Module 3 Session 3: Multiplicative Comparisons with a Giant
  - Module 3 Session 5: Unit 1 Post-Assessment
  - Module 4 Session 2: Benchmarks for Standard Units: Mass/ Weight

**4th Grade Supporting:**

- I compare factors and products in a multiplication number sentence. (4.OA.4)
  - Module 1 Session 3: Unit 1 Pre-Assessment
  - Module 2 Session 1: Finding Factors of Numbers from 1 to 36
  - Module 2 Session 2: Exploring Prime & Composite Numbers
  - Module 2 Session 5: Seeing Strategies, Part 1
- I find factor pairs and write a list of factors for any number up to 100. (4.OA.4)
  - Module 1 Session 3: Unit 1 Pre-Assessment
  - Module 2 Session 1: Finding Factors of Numbers from 1 to 36
  - Module 2 Session 2: Exploring Prime & Composite Numbers
  - Module 3 Session 1: Introducing Work Place 1E Products Four in a Row
  - Module 3 Session 2: Multiplication & Division Checkpoint
  - Module 3 Session 5: Unit 1 Post-Assessment
- I determine whether a whole number up to 100 is prime or composite. (4.OA.4)
  - Module 2 Session 2: Exploring Prime & Composite Numbers
  - Module 3 Session 2: Multiplication & Division Checkpoint
  - Module 3 Session 5: Unit 1 Post-Assessment
- I write multiples of single digit numbers, determine whether a given number is a multiple of a one-digit number, and recognize and determine that a whole number is a multiple of each of its

factors. (4.OA.4)

- Module 2 Session 5: Seeing Strategies, Part 1
- Module 3 Session 1: Introducing Work Place 1E Products Four in a Row
- Module 3 Session 5: Unit 1 Post-Assessment
- I find equivalent measurement conversions in the US Customary System, including those with fractions and those in a number stories. (4.MD.1)
  - Module 4 Session 1: Linear Measurement
  - Module 4 Session 3: Volume & Capacity
- I find equivalent measurement conversions in the Metric System, including those with decimals and those in number stories. (4.MD.1)
  - Module 4, Session 1: Linear Measurement
  - Module 4 Session 3: Volume & Capacity

### **3rd Grade Priority Reviewed in Unit:**

- I understand multiplication by thinking about groups of objects. (3.OA.1)
  - Module 1 Session 1: Setting Our Course for the Year
  - Module 1 Session 2: Number Lines
  - Module 1 Session 5: Models for Division
- I solve multiplication and/or division number stories and write the matching number sentence (3.OA.3)
  - Module 1 Session 2: Number Lines
  - Module 1 Session 4: Methods & Models for Multiplication
  - Module 1 Session 6: Math Forum on Multiplication & Division
- I find the missing number in a multiplication and/or division number sentence (3.OA.4)
  - Module 1 Session 2: Number Lines
  - Module 3 Session 2: Multiplication & Division Checkpoint
- I multiply using the Commutative Property (turn-around facts). (3.OA.5)
  - Module 2 Session 1: Finding Factors of Numbers from 1 to 36
  - Module 2 Session 3: Reviewing Multiplication Strategies
  - Module 2 Session 5: Seeing Strategies, Part 1
- I multiply three 1-digit numbers using the Associative Property. (3.OA.5)
  - Module 2 Session 3: Reviewing Multiplication Strategies
  - Module 2 Session 5: Seeing Strategies, Part 1
- I multiply a 2-digit by 1-digit number using the Distributive Property. (3.OA.5)
  - Module 2 Session 3: Reviewing Multiplication Strategies
  - Module 2 Session 4: Introducing Work Place 1B Arrays to One Hundred
  - Module 2 Session 5: Seeing Strategies, Part 1
  - Module 2 Session 6: Seeing Strategies, Part 2
- I easily and quickly multiply and/or divide within 100 from memory. (3.OA.7)
  - Module 1 Session 2: Number Lines
  - Module 1 Session 4: Methods & Models for Multiplication
  - Module 2 Session 3: Reviewing Multiplication Strategies
  - Module 2 Session 4: Introducing Work Place 1B Arrays to One Hundred
  - Module 2 Session 6: Seeing Strategies, Part 2
  - Module 3 Session 1: Introducing Work Place 1E Products Four in a Row
  - Module 3 Session 2: Multiplication & Division Checkpoint
  - Module 3 Session 4: Introducing Work Place 1F Dragon's Gold



- Module 3 Session 5: Unit 1 Post-Assessment
- I find the area of a rectangle with whole number side lengths by tiling it and show that the area is the same as would be found by multiplying the side lengths. (3.MD.7a)
  - Module 2 Session 4: Introducing Work Place 1B Arrays to One Hundred
- I multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning. (3.MD.7b)
  - Module 2 Session 1: Finding Factors of Numbers from 1 to 36
- I use tiling to show in a concrete case that the area of a rectangle with whole number side lengths  $a$  and  $b + c$  is the sum of  $a \times b$  and  $a \times c$ . Use area models to represent the distributive property in mathematical reasoning. (3.MD.7c)
  - Module 2 Session 3: Reviewing Multiplication Strategies
- I recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. (3.MD.7d)
  - Module 2 Session 5: Seeing Strategies, Part 1
  - Module 2 Session 6: Seeing Strategies, Part 2

### Assessment Evidence

#### Performance Assessment Options

*May include, but are not limited to the following:*

- Bridges Unit Pre Assessment
- Bridges Unit Checkpoints
- Bridges Unit Post Assessment

#### Other assessment options

*May include, but are not limited to the following:*

- Bridges Unit Observational Assessments
- Student Work Samples
- Classroom Exit Tickets

### Digital Tools & Supplementary Resources

Bridges Intervention  
ALEKS and Dreambox

## Unit 2 - Multi-Digit Multiplication & Early Division

**Unit Overview:** This unit continues to build multiplicative reasoning by working with multi-digit multiplication and early division.

### Unit Standards

#### Priority Standards

**4.OA.A Use the four operations with the whole numbers to solve problems.**

- 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.NBT.A Generalize place value understanding for multi-digit whole numbers.**

- **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  $700/70 = 10$  by applying concepts of place value and division.

**4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.**

- **4.NBT.5** Multiply a whole number (up to) a 4-digit number by a 1-digit number using strategies based on place value and the properties of operations, and multiply two 2-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the multiplication calculation using equations, rectangular arrays, and/or area models.
- **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, arrays, and/or area models.

**Supporting Standards**

**4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.**

- **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.

**Learning Targets**

**4th Grade Priority:**

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>• Module 2 Session 4</li> <li>• Module 3 Session 1, 5</li> <li>• Module 4 Session 2, 4</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>• Module 2 Session 4</li> <li>• Module 3 Session 2</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1, 3</li> <li>• Module 2 Session 5</li> <li>• Module 3 Session 1, 4</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>• Module 3 Session 2-3, 5</li> <li>• Module 4 Session 3-4</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1, 4-5</li> <li>• Module 2 Session 3</li> <li>• Module 3 Session 3</li> <li>• Module 4 Session 1, 3</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>• Module 1 Session 3</li> <li>• Module 2 Session 1-2</li> <li>• Module 3 Session 1</li> <li>• Module 4 Session 2</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b> Module 2 Session 2, 5 Module 4 Session 1, 3	<b>MP.8</b> <ul style="list-style-type: none"> <li>• Module 1 Session 4-5</li> <li>• Module 2 Session 1, 3</li> <li>• Module 3 Session 3-4</li> </ul>

**4th Grade Priority:**

- I solve multi-step word problems using all operations and write a corresponding number sentence using a variable for the unknown. (4.OA.3)
  - Module 2 Session 1: Sketching Multiplication Arrays
  - Module 3 Session 3: Doubling & Halving
- I interpret remainders in a division story problem. (4.OA.3)
  - Module 2 Session 1: Sketching Multiplication Arrays
  - Module 2 Session 3: Multiplying by Ten, One Hundred & One Thousand
  - Module 3 Session 3: Doubling & Halving
- I assess the reasonableness of answers using mental computation and estimation strategies including rounding (all operations). (4.OA.3)
  - Module 2 Session 1: Sketching Multiplication Arrays
  - Module 2 Session 3: Multiplying by Ten, One Hundred & One Thousand
  - Module 3 Session 3: Doubling & Halving
- I demonstrate that each place value space is 10 times greater than the place to its right. (4.NBT.1)
  - Module 1 Session 1: The Great Wall of Base Ten
  - Module 1 Session 4: Multiplying by Ten
  - Module 2 Session 3: Multiplying by Ten, One Hundred & One Thousand
  - Module 2 Session 5: Multiplying Single Digits by Multiples of Ten
- I use basic fact knowledge to solve extended multiplication facts (4.NBT.5)
  - Module 1 Session 4: Multiplying by Ten
  - Module 1 Session 5: Building Multiplication Arrays
  - Module 2 Session 1: Sketching Multiplication Arrays
  - Module 2 Session 2: Quick Sketches & Strategies
  - Module 2 Session 5: Multiplying Single Digits by Multiples of Ten
- I multiply (up to) a 4-digit number by a 1-digit number using words, equations, arrays, and/or number models (4.NBT.5)
  - Module 1 Session 4: Multiplying by Ten
  - Module 1 Session 5: Building Multiplication Arrays
  - Module 2 Session 1-5
  - Module 3 Session 1-5
  - Module 4 Session 4: Multiplication & Division
- I divide a 4-digit whole number by a 1-digit divisor (4.NBT.6)
  - Module 3 Session 3: Doubling & Halving
  - Module 4 Session 1: A Remainder of One
  - Module 4 Session 2: What Can You Do with the Remainder?
  - Module 4 Session 3: Remainders Win
  - Module 4 Session 4: Multiplication & Division
- I generate a quotient in the form of a whole number, mixed number and decimal (4.NBT.6)
  - Module 3 Session 3: Doubling & Halving
  - Module 4 Session 1-5
- I illustrate and explain division using words, equations, arrays, and/or numbers (4.NBT.6)
  - Module 3 Session 3: Doubling & Halving
  - Module 4 Session 3: Remainders Win
  - Module 4 Session 5: Unit 2 Post-Assessment

**4th Grade Supporting:**

- I use a formula to calculate the perimeter and the area of a rectangle, including those in number stories. (4.MD.3)
  - Module 1 Session 1: The Great Wall of Base Ten
  - Module 1 Session 3: Metric Units of Linear & Area Measurement
  - Module 1 Session 4: Multiplying by Ten
  - Module 1 Session 5: Building Multiplication Arrays

### 3rd Grade Priority Reviewed

- I find the missing number in a multiplication and/or division number sentence (3.OA.4)
  - Module 1 Session 4: Multiplying by Ten
- I easily and quickly multiply and/or divide within 100 from memory. (3.OA.7)
  - Module 1 Session 4: Multiplying by Ten
  - Module 2 Session 1: Sketching Multiplication Arrays
- I multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems and represent whole-number products as rectangular areas in mathematical reasoning. (3.MD.7b)
  - Module 1 Session 3: Metric Units of Linear & Area Measurement

### Assessment Evidence

#### Performance Assessment Options

*May include, but are not limited to the following:*

- Bridges Unit Pre Assessment
- Bridges Unit Checkpoints
- Bridges Unit Post Assessment

#### Other assessment options

*May include, but are not limited to the following:*

- Bridges Unit Observational Assessments
- Student Work Samples
- Classroom Exit Tickets

### Digital Tools & Supplementary Resources

Bridges Intervention  
ALEKS and Dreambox

### Unit 3- Fractions & Decimals

**Unit Overview:** This unit focuses on the use of various tools to model, read, write, compare, order, compose, and decompose fractions and decimals.

#### Unit Standards

##### Priority Standards

##### 4.NF.A Extend understanding of fraction equivalence and ordering.

- 4.NF.1 Explain why a fraction  $a/b$  is equivalent to a fraction  $(n*a)/(n*b)$  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.

- **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.

**4.NF.B Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.**

- **4.NF.3** Understand a fraction  $\frac{a}{b}$  with a  $a > 1$  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.
- (c) Add and subtract mixed numbers with like denominators eg by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction.
- **4.NF.4** Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- (a) Understand a fraction as  $\frac{a}{b}$  as a multiple of  $\frac{1}{b}$ .
- (b) Understand a multiple of  $\frac{a}{b}$  as a multiple of  $\frac{1}{b}$  and use this understanding to multiply a fraction by a whole number.
- (c) Solve word problems involving multiplication of a fraction by a whole number eg by using visual fraction models and equations to represent the problem.

**4.NF.C Understand decimal notation for fractions, and compare decimal fractions.**

- **4.NF.5** Express a fraction with a denominator 10 as an equivalent fraction with a denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.
- **4.NF.6** Use decimal notation for fractions with denominators of 10 and 100.
- **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  $>$ ,  $=$ ,  $<$  and justify the conclusions by using a visual model.

**Learning Targets**

**4th Grade Priority:**

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>● Module 1 Session 2</li> <li>● Module 2 Session 2, 5-6</li> <li>● Module 3 Session 3-4</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>● Module 1 Session 1</li> <li>● Module 4 Session 3-4</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>● Module 1 Session 1-2</li> <li>● Module 2 Session 1</li> <li>● Module 3 Session 1</li> <li>● Module 4 Session 1, 4</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>● Module 2 Session 6</li> <li>● Module 3 Session 2-3</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>● Module 1 Session 3-6</li> <li>● Module 2 Session 1, 3-4</li> <li>● Module 3 Session 2, 4</li> <li>● Module 4 Session 1, 3</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>● Module 3 Session 1</li> </ul>

<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b> Module 1 Session 4-6 Module 2 Session 4 Module 4 Session 2	<b>MP.8</b> ● Module 1 Session 2-3 ● Module 2 Session 2, 3, 5 ● Module 4 Session 2
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#### 4th Grade Priority

- I can explain why a fraction  $a/b$  is equivalent to a fraction  $(n*a)/(n*b)$  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. (4.NF.1)
  - Module 1 Session 3 Fractions & Mixed Numbers
  - Module 1 Session 4 If This Is One-Third
  - Module 1 Session 5 Egg Carton Fractions
  - Module 1 Session 6 Name that Fraction
  - Module 2 Session 1 Exploring Fractions on the Geoboard
  - Module 2 Session 3 Comparing, Adding & Subtracting Fractions
  - Module 2 Session 4 Dozens of Eggs
  - Module 2 Session 6 Racing Fractions
  - Module 3 Session 4 Decimal More or Less
- I can order and compare fractions with unlike numerators and denominators using  $>$ ,  $<$ , or  $=$  by thinking about benchmark fractions or creating equivalent fractions and can recognize that comparisons are valid only when the two fractions refer to the same whole. (4.NF.2)
  - Module 1 Session 3 Fractions & Mixed Numbers
  - Module 2 Session 3 Comparing, Adding & Subtracting Fractions
  - Module 3 Session 4 Decimal More or Less
  - Module 4 Session 3 Ordering Fractions & Decimals on a Number Line
- I understand the addition and subtraction of fractions as joining and separating parts referring to the same whole (4.NF.3a)
  - Module 1 Session 2: Fair Shares
  - Module 1 Session 3: Fractions & Mixed Numbers
  - Module 1 Session 4: If This Is One-Third
  - Module 2 Session 3: Comparing, Adding & Subtracting Fractions
  - Module 2 Session 4 Dozens of Eggs
  - Module 2 Session 5: How Many Candy Bars
  - Module 2 Session 6: Racing Fractions
- I add and subtract fractions and mixed numbers with like denominators (4NF.3b)
  - Module 1 Session 4 If This Is One-Third
  - Module 1 Session 5 Egg Carton Fractions
  - Module 2 Session 2 Last Equation Wins
  - Module 2 Session 4 Dozens of Eggs
  - Module 2 Session 6: Racing Fractions
  - Module 3 Session 3: Thinking About Tenths & Hundredths
- I solve word problems involving fractions with like denominators using addition and subtraction. (4.NF.3c)
  - Module 2 Session 3 Comparing, Adding & Subtracting Fractions
  - Module 2 Session 5 How Many Candy Bars?

- Module 2 Session 6: Racing Fractions
- I show more than one way to break apart a fraction into the sum of two or more fractions using an equation or a visual fraction model. (4.NF.3d)
  - Module 2 Session 2 Last Equation Wins
  - Module 2 Session 5 How Many Candy Bars?
  - Module 3 Session 4 Decimal More or Less
- I understand a fraction  $a/b$  as a multiple of  $1/b$  ( $5/4 = 5 * (1/4)$ ) (4.NF.4a)
  - Module 2 Session 1 Exploring Fractions on the Geoboard
  - Module 2 Session 2 Last Equation Wins
  - Module 2 Session 6: Racing Fractions
- I use multiples, a number line, or a visual model to multiply a fraction by a whole number, including those in number stories (4.NF.4b)
  - Module 2 Session 1 Exploring Fractions on the Geoboard
- I convert fractions from tenths to hundredths and from hundredths to tenths (4.NF.5)
  - Module 3 Session 1 Introducing Decimal Numbers
  - Module 3 Session 2 Comparing Decimal Numbers
  - Module 3 Session 3 Thinking About Tenths & Hundredths
  - Module 3 Session 4 Decimal More or Less
  - Module 4 Session 1 Decimal & Fraction Relationships
- I add fractions containing both tenths and hundredths (4.NF.5)
  - Module 3 Session 2 Comparing Decimal Numbers
  - Module 3 Session 3 Thinking About Tenths & Hundredths
  - Module 4 Session 1 Decimal & Fraction Relationships
- I convert fractions to decimals and decimals to fractions (tenths and hundredths) (4.NF.6)
  - Module 3 Session 1 Introducing Decimal Numbers
  - Module 3 Session 2 Comparing Decimal Numbers
  - Module 3 Session 3 Thinking About Tenths & Hundredths
  - Module 4 Session 1 Decimal & Fraction Relationships
  - Module 4 Session 2 Fractions & Decimals
- I compare decimals to the hundredths place using  $<$ ,  $>$  and  $=$ . (4.NF.7)
  - Module 3 Session 2 Comparing Decimal Numbers
  - Module 3 Session 4 Decimal More or Less
  - Module 4 Session 2 Fractions & Decimals
- I read and write numbers to the hundredths place (4.NF.7)
  - Module 3 Session 2 Comparing Decimal Numbers
  - Module 3 Session 4 Decimal More or Less
  - Module 4 Session 2 Fractions & Decimals

### Assessment Evidence

#### Performance Assessment Options

*May include, but are not limited to the following:*

- Bridges Unit Pre Assessment
- Bridges Unit Checkpoints
- Bridges Unit Post Assessment

#### Other assessment options

*May include, but are not limited to the following:*

- Bridges Unit Observational Assessments
- Student Work Samples
- Classroom Exit Tickets

## Digital Tools & Supplementary Resources

Bridges Intervention  
ALEKS and Dreambox

## Unit 4 - Addition, Subtraction & Measurement

**Unit Overview:** This unit explores addition, subtraction, and measurement concepts, including the standard addition and subtraction algorithms. Algorithms are compared to other methods and generalizations are made about which approach works best for certain problems.

### Unit Standards

#### Priority Standards

##### **4.OA.A Use the four operations with whole numbers to solve problems.**

- 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.NBT.A Generalize place value understanding for multi-digit whole numbers.**

- 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  $700/70 = 10$  by applying concepts of place value and division.
- 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 greater than, less than, and equal symbols to record the results of comparisons.
- 4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.

##### **4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.**

- 4.NBT.4 Fluently add and subtract multi digit whole numbers using the standard algorithm.

#### Supporting Standards

##### **4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.**

- 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 a smaller unit. Record measurement equivalents in a 2-column table.
- 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.

### Learning Targets

**4th Grade Priority:**



Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>Module 3 Session 3-5</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>Module 1 Session 1, 7</li> <li>Module 2 Session 4</li> <li>Module 3 Session 1-2, 4-5</li> <li>Module 4 Session 3</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>Module 1 Session 1-3</li> <li>Module 3 Session 1-2</li> <li>Module 4 Session 3</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>Module 1 Session 4-7</li> <li>Module 2 Session 1-5</li> <li>Module 4 Session 1</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>Module 2 Session 3-4</li> <li>Module 3 Session 3</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>Module 1 Session 6-7</li> <li>Module 2 Session 1, 5</li> <li>Module 4 Session 1</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b> <ul style="list-style-type: none"> <li>Module 4 Session 2</li> </ul>	<b>MP.8</b> <ul style="list-style-type: none"> <li>Module 1 Session 2-5</li> <li>Module 2 Session 1-2</li> <li>Module 4 Session 2</li> </ul>

#### 4th Grade Priority:

- I solve multi-step word problems using all operations and write a corresponding number sentence using a variable for the unknown. (4.OA.3)
  - Module 2 Session 3: The Standard Algorithm for Multi-digit Subtraction
  - Module 2 Session 4: Think Before You Subtract
- I assess the reasonableness of answers using mental computation and estimation strategies including rounding (all operations). (4.OA.3)
  - Module 1 Session 5 The Standard Algorithm for Multi-Digit Addition
  - Module 1 Session 6 Think Before You Add
  - Module 2 Session 3: The Standard Algorithm for Multi-digit Subtraction
  - Module 2 Session 4: Think Before You Subtract
- I demonstrate that each place value space is 10 times greater than the place to its right. (4.NBT.1)
  - Module 1 Session 2 Investigating Numbers to Ten Thousand
  - Module 1 Session 3: Charting One Million
  - Module 1 Session 5: The Standard Algorithm for Multi-digit Addition
  - Module 2 Session 3: The Standard Algorithm for Multi-digit Subtraction
  - Module 2 Session 4: Think Before You Subtract
  - Module 2 Session 5: Comparing Subtraction Strategies
- I write whole numbers in expanded form (4.NBT.2)
  - Module 1 Session 3: Charting One Million
  - Module 1 Session 5: The Standard Algorithm for Multi-digit Addition
  - Module 1 Session 7: Comparing Addition Strategies
- I compare multi digit numbers. (4.NBT.2)
  - Module 1 Session 1: Investigating Numbers to Ten Thousand

- Module 1 Session 3: Charting One Million
- Module 1 Session 7 Comparing Addition Strategies
- Module 2 Session 2: Constant Difference
- Module 3 Session 2: Distance Challenge
- I round numbers to the billions places. (4.NBT.3)
  - Module 1 Session 2: Investigating Numbers to Ten Thousand
  - Module 1 Session 4: Add, Round & Compare
  - Module 1 Session 5: The Standard Algorithm for Multi-digit Addition
  - Module 1 Session 7 Comparing Addition Strategies
  - Module 2 Session 2: Constant Difference
  - Module 2 Session 5: Module 2 Session 5: Comparing Subtraction Strategies
  - Module 3 Session 1: Measurement Benchmarks
- I add and/or subtract multi-digit numbers using the standard algorithm. (4.NBT.4)
  - Module 1 Session 5: The Standard Algorithm for Multi-digit Addition
  - Module 1 Session 6: Think Before You Add
  - Module 1 Session 7 Comparing Addition Strategies
  - Module 2 Session 3: The Standard Algorithm for Multi-digit Subtraction
  - Module 2 Session 4: Think Before You Subtract
  - Module 2 Session 5: Comparing Subtraction Strategies

**4th Grade Supporting:**

- I find equivalent measurement conversions in the US Customary System, including those with fractions and those in a number stories. (4.MD.1)
  - Module 3 Session 5: Mass Amounts
- I find equivalent measurement conversions in the Metric System, including those with decimals and those in number stories. (4.MD.1)
  - Module 3 Session 1: Measurement Benchmarks
  - Module 3 Session 2: Distance Challenge
  - Module 3 Session 4: Liquid Volume
  - Module 3 Session 5: Mass Amounts
- I record measurement equivalents in a 2-column table. (4.MD.1)
  - Module 3 Session 2: Distance Challenge
  - Module 3 Session 3: It's About Time
  - Module 3 Session 4 : Liquid Volume
  - Module 3 Session 5: Mass Amounts
- I use the four operations to solve number stories involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems that require expressing measurements given in a larger unit in terms of a smaller unit. (4.MD.2)
  - Module 3 Session 1: Measurement Benchmarks
  - Module 3 Session 2: Distance Challenge
  - Module 3 Session 3: It's About Time
  - Module 3 Session 4: Liquid Volume
  - Module 3 Session 5: Mass Amounts

**Assessment Evidence**

**Performance Assessment Options**

**Other assessment options**

<p><i>May include, but are not limited to the following:</i></p> <ul style="list-style-type: none"> <li>● Bridges Unit Pre Assessment</li> <li>● Bridges Unit Checkpoints</li> <li>● Bridges Unit Post Assessment</li> </ul>	<p><i>May include, but are not limited to the following:</i></p> <ul style="list-style-type: none"> <li>● Bridges Unit Observational Assessments</li> <li>● Student Work Samples</li> <li>● Classroom Exit Tickets</li> </ul>
<b>Digital Tools &amp; Supplementary Resources</b>	
<p>Bridges Intervention ALEKS and Dreambox</p>	

<b>Unit 5 - Geometry &amp; Measurement</b>
<p><b>Unit Overview:</b> This unit introduces geometric concepts, including angles and angle measure, parallel and perpendicular lines, and reflective symmetry.</p>
<b>Unit Standards</b>
<p><b>Supporting Standards</b></p> <p><b>4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</b></p> <ul style="list-style-type: none"> <li>● <b>4.MD.3</b> 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.</li> </ul> <p><b>4.OA.C Generate and analyze patterns.</b></p> <ul style="list-style-type: none"> <li>● <b>4.OA.5</b> 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.</li> </ul> <p><b>4.MD.C Geometric measurement: understand concepts of angle and measure angles.</b></p> <ul style="list-style-type: none"> <li>● <b>4.MD.5</b> Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.</li> <li>● <b>4.MD.6</b> Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.</li> <li>● <b>4.MD.7</b> 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, e.g., by using an equation with a symbol for the unknown angle measure.</li> </ul> <p><b>4.G.A Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</b></p> <p><b>Cluster Number (space) Name of supporting math cluster.</b></p> <ul style="list-style-type: none"> <li>● <b>4.G.1</b> Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in 2 dimensional figures.</li> <li>● <b>4.G.2</b> 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.</li> <li>● <b>4.G.3</b> 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.</li> </ul>

## Learning Targets

### 4th Grade Priority:

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>● Module 1 Session 4</li> <li>● Module 2 Session 2, 4-6</li> <li>● Module 3 Session 4</li> <li>● Module 4 Session 2-3</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>● Module 1 Session 1, 5</li> <li>● Module 4 Session 4</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>● Module 1 Session 4, 6</li> <li>● Module 2 Session</li> <li>● Module 3 Session</li> <li>● Module 4 Session 2</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>● Module 2 Session 2-6</li> <li>● Module 3 Session 3</li> <li>● Module 4 Session 3</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>● Module 1 Session 2-3</li> <li>● Module 2 Session 1, 3</li> <li>● Module 3 Session 1-2, 4</li> <li>● Module 4 Session 1</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>● Module 1 Session 1, 5, 6</li> <li>● Module 4 Session 1, 4</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b>	<b>MP.8</b> <ul style="list-style-type: none"> <li>● Module 1 Session 2-3</li> <li>● Module 2 Session 1</li> <li>● Module 3 Session 1-3</li> </ul>

### 4th Grade Supporting:

- I use a formula to calculate the perimeter and the area of a rectangle, including those in number stories. (4.MD.3)
  - Module 3 Session 1: Measuring Area
  - Module 3 Session 2: Measuring Perimeter
  - Module 3 Session 3: Area & Perimeter Formulas
  - Module 3 Session 4: Hexarights
  - Module 4 Session 2: Geometry Measurement Problems
- When the area is known, I find a missing length or width of a rectangle. (4.MD.3)
  - Module 3 Session 3: Area & Perimeter Formulas
  - Module 3 Session 4: Hexarights
  - Module 4 Session 2: Geometry Measurement Problems
- I recognize angles as shapes that are formed wherever two rays share a common endpoint and are measured with a reference to a circle. (4.MD.5)
  - Module 1 Session 2: Introducing Angles
  - Module 1 Session 3: Benchmark Angles
  - Module 1 Session 5: Sir Cumference and the Great Knight of Angleland
  - Module 1 Session 6: From Pattern Block to Protractors
  - Module 2 Session 2: Parallels, Perpendiculars & Angles
  - Module 4 Session 1: Human Angles
  - Module 4 Session 2: Geometry Measurement Problems
- I use a protractor to measure angles in whole number degrees. (4.MD.6)

- Module 1 Session 6: From Pattern Blocks to Protractors
- Module 2 Session 2: Parallels, Perpendiculars & Angles (practice-work sample)
- Module 4 Session 1: Human Angles
- I can sketch angles of specified measure. (4.MD.6)
  - Module 1 Session 6: From Pattern Blocks to Protractors
  - Module 4 Session 1: Human Angles
- I recognize angle measure as additive. (4.MD.7)
  - Module 1 Session 4: Angle Puzzles
  - Module 2 Session 2: Parallels, Perpendiculars & Angles
  - Module 4 Session 2: Geometry Measurement Problems
  - Module 4 Session 3: Geometry Measurement Problems Forum
- I solve addition and subtraction problems to find unknown angles. (4.MD.7)
  - Module 1 Session 4: Angles Puzzles
  - Module 2 Session 2: Parallels, Perpendiculars & Angles
  - Module 4 Session 2: Geometry Measurement Problems
  - Module 4 Session 3: Geometry Measurement Problems Forum
- I draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. (4.G.1)
  - Module 1 Session 2: Introducing Angles
  - Module 2 Session 2: Parallels, Perpendiculars & Angles
  - Module 2 Session 4: Polygon Detectives
  - Module 2 Session 6: Polygon Bingo
  - Module 3 Session 4: Hexarights
- I identify points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines in 2 dimensional figures. (4.G.1)
  - Module 1 Session 2: Introducing Angles
  - Module 1 Session 3: Benchmark Angles
  - Module 1 Session 5: Sir Cumference and the Great Knight of Angleland
  - Module 2 Session 1: Introducing Parallel & Perpendicular Lines
  - Module 2 Session 2: Parallels, Perpendiculars & Angles
  - Module 2 Session 4: Polygon Detectives
  - Module 2 Session 5: Polygon Riddles
  - Module 2 Session 6: Polygon Bingo
  - Module 3 Session 4: Hexarights
- I classify 2-dimensional figures based on lines (parallel/perpendicular) and angles (acute, obtuse, right). (4.G.2)
  - Module 2 Session 4: Polygon Detectives
  - Module 2 Session 5: Polygon Riddles
  - Module 2 Session 6: Polygon Bingo
  - Module 3 Session 4: Hexarights
- I identify and name polygons. (4.G.2)
  - Module 2 Session 4: Polygon Detectives
  - Module 2 Session 5: Polygon Riddles
  - Module 2 Session 6: Polygon Bingo
  - Module 3 Session 4: Hexarights
- I identify, measure, and draw angles. (right, acute, obtuse, straight, reflexive). (4.G.2)
  - Module 2 Session 4: Polygon Detectives

<ul style="list-style-type: none"> <li>○ Module 2 Session 5: Polygon Riddles</li> <li>○ Module 2 Session 6: Polygon Bingo</li> <li>○ Module 3 Session 4 Hexarights</li> <li>● I classify 2-dimensional figures based on angle size and type. (4.G.2) <ul style="list-style-type: none"> <li>○ Module 2 Session 4: Polygon Detectives</li> <li>○ Module 2 Session 5: Polygon Riddles</li> <li>○ Module 2 Session 6: Polygon Bingo</li> <li>○ Module 3 Session 4: Hexarights</li> </ul> </li> <li>● I identify right triangles. (4.G.2) <ul style="list-style-type: none"> <li>○ Module 2 Session 4: Polygon Detectives</li> <li>○ Module 2 Session 5: Polygon Riddles</li> <li>○ Module 2 Session 6: Polygon Bingo</li> <li>○ Module 3 Session 4: Hexarights</li> </ul> </li> <li>● I identify lines of symmetry in a 2-dimensional figure. (4.G.3) <ul style="list-style-type: none"> <li>○ Module 2 Session 3: Line Symmetry</li> <li>○ Module 2 Session 6: Polygon Bingo</li> </ul> </li> <li>● I draw lines of symmetry in a 2-dimensional figure. (4.G.3) <ul style="list-style-type: none"> <li>○ Module 2 Session 3: Line Symmetry</li> <li>○ Module 2 Session 6: Polygon Bingo</li> </ul> </li> </ul>	
<b>Assessment Evidence</b>	
<p><b>Performance Assessment Options</b>  <i>May include, but are not limited to the following:</i></p> <ul style="list-style-type: none"> <li>● Bridges Unit Pre Assessment</li> <li>● Bridges Unit Checkpoints</li> <li>● Bridges Unit Post Assessment</li> </ul>	<p><b>Other assessment options</b>  <i>May include, but are not limited to the following:</i></p> <ul style="list-style-type: none"> <li>● Bridges Unit Observational Assessments</li> <li>● Student Work Samples</li> <li>● Classroom Exit Tickets</li> </ul>
<b>Digital Tools &amp; Supplementary Resources</b>	
<p>Bridges Intervention  ALEKS and Dreambox</p>	

<b>Unit 6 - Multiplication &amp; Division, Data &amp; Fractions</b>
<p><b>Unit Overview:</b> This unit makes connections between multiplication and division.</p>
<b>Unit Standards</b>
<p><b>Priority Standards</b>  <b>4.OA.A Use the four operations with whole numbers to solve problems.</b></p> <ul style="list-style-type: none"> <li>● <u>4.OA.3</u> 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</li> </ul>

quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

**4.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.**

- **4.NBT.5** Multiply a whole number (up to a 4-digit number) by a 1-digit number using strategies based on place value and the properties of operations, and multiply two 2-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the multiplication calculation using equations, rectangular arrays, and/or area models.
- **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, arrays, and/or area models.

**Supporting Standards**

**4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.**

- **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.MD.B Represent and interpret data.**

- **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.

**Learning Targets**

**4th Grade Priority:**

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1-2, 4</li> <li>• Module 2 Session 1, 4-5</li> <li>• Module 3 Session 1-2</li> <li>• Module 4 Session 2-3</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>• Module 4 Session 3</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>• Module 1 Session 4</li> <li>• Module 3 Session 3-5</li> <li>• Module 4 Session 1, 3</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>• Module 1 Session 3-4</li> <li>• Module 2 Session 2-5</li> <li>• Module 3 Session 5</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>• Module 1 Session 2-3, 5-7</li> <li>• Module 2 Session 1-5</li> <li>• Module 3 Session 1-2</li> <li>• Module 4 Session 2</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>• Module 1 Session</li> <li>• Module 2 Session 2</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1, 3, 5</li> <li>• Module 3 Session 3, 5</li> <li>• Module 4 Session 1</li> </ul>	<b>MP.8</b> <ul style="list-style-type: none"> <li>• Module 1 Session 6-7</li> <li>• Module 3 Session 4</li> <li>• Module 4 Session 1</li> </ul>

**4th Grade Priority:**

- I solve multi-step word problems using all operations and write a corresponding number sentence using a variable for the unknown. (4.OA.3)
  - Module 1 Session 3: Discussing Larger Division with Money
  - Module 1 Session 7: Revisiting the Doubling and Halving Strategy
  - Module 3 Session 4: Present Purchase
  - Module 4 Session 2: More Division Strategies
- I assess the reasonableness of answers using mental computation and estimation strategies including rounding (all operations). (4.OA.3)
  - Module 1 Session 7: Revisiting the Doubling and Halving Strategy
  - Module 3 Session 4: Present Purchase
  - Module 4 Session 2: More Division Strategies
- I use basic fact knowledge to solve extended multiplication facts (4.NBT.5)
  - Module 1 Session 3: Discussing Larger Division with Money
  - Module 1 Session 4: More Multiplication Strategies
  - Module 1 Session 5: Modeling Multiplication & Division, Part 1
  - Module 1 Session 6: Modeling Multiplication & Division, Part 2
  - Module 1 Session 7: Revisiting the Doubling & Halving Strategy
  - Module 2 Session 1: Area Problems
  - Module 2 Session 2: Investigating Perimeter
  - Module 2 Session 3: Perimeter Problems
  - Module 4 Session 1: Lowest Remainder Wins
- I multiply (up to) a 4-digit number by a 1-digit number using words, equations, arrays, and/or number models (4.NBT.5)
  - Module 1 Session 3: Discussing Larger Division with Money
  - Module 1 Session 4: More Multiplication Strategies
  - Module 1 Session 5: Modeling Multiplication & Division, Part 1
  - Module 1 Session 6: Modeling Multiplication & Division, Part 2
  - Module 1 Session 7: Revisiting the Doubling & Halving Strategy
  - Module 2 Session 1: Area Problems
  - Module 2 Session 2: Investigating Perimeter
  - Module 2 Session 3: Perimeter Problems
  - Module 4 Session 1: Lowest Remainder Wins
- I divide a 4-digit whole number by a 1-digit divisor (4.NBT.6)
  - Module 1 Session 2: Larger Division with Money
  - Module 1 Session 3: Discussing Larger Division with Money
  - Module 1 Session 5: Modeling Multiplication & Division, Part 1
  - Module 1 Session 6: Modeling Multiplication & Division, Part 2
  - Module 2 Session 1-5
  - Module 3 Session 4: Present Purchase
  - Module 3 Session 5: Division Strategies Math Forum
  - Module 4 Session 1: Lowest Remainder Wins
  - Module 4 Session 2: More Division Strategies
- I generate a quotient in the form of a whole number, mixed number and decimal (4.NBT.6)
  - Module 1 Session 2: Larger Division with Money
  - Module 1 Session 3: Discussing Larger Division with Money
  - Module 1 Session 5: Modeling Multiplication & Division, Part 1
  - Module 1 Session 6: Modeling Multiplication & Division, Part 2



- Module 2 Session 1-5
- Module 3 Session 4: Present Purchase
- Module 3 Session 5: Division Strategies Math Forum
- Module 4 Session 1: Lowest Remainder Wins
- Module 4 Session 2: More Division Strategies
- I illustrate and explain division using words, equations, arrays, and/or numbers (4.NBT.6)
  - Module 1 Session 2: Larger Division with Money
  - Module 1 Session 3: Discussing Larger Division with Money
  - Module 1 Session 5: Modeling Multiplication & Division, Part 1
  - Module 1 Session 6: Modeling Multiplication & Division, Part 2
  - Module 2 Session 1-5
  - Module 3 Session 4: Present Purchase
  - Module 3 Session 5: Division Strategies Math Forum
  - Module 4 Session 1: Lowest Remainder Wins
  - Module 4 Session 2: More Division Strategies

**4th Grade Supporting:**

- I use a formula to calculate the perimeter and the area of a rectangle, including those in number stories. (4.MD.3)
  - Module 2 Session 1-5
- When the area is known, I find a missing length or width of a rectangle. (4.MD.3)
  - Module 2 Session 1-5
- I make a line plot to display a data set of measurements in fractions of a unit ( $1/2$ ,  $1/4$ ,  $1/8$ ). (4.MD.4)
  - Module 3 Session 1: Pool Times on a Line Plot
  - Module 3 Session 2: Data Analysis
- I solve problems involving addition and subtraction of fractions by using information presented in line plots. (4.MD.4)
  - Module 3 Session 2: Data Analysis

**Assessment Evidence**

**Performance Assessment Options**

*May include, but are not limited to the following:*

- Bridges Unit Pre Assessment
- Bridges Unit Checkpoints
- Bridges Unit Post Assessment

**Other assessment options**

*May include, but are not limited to the following:*

- Bridges Unit Observational Assessments
- Student Work Samples
- Classroom Exit Tickets

**Digital Tools & Supplementary Resources**

Bridges Intervention  
ALEKS and Dreambox

## Unit 7 - Patterns and Problems

**Unit Overview:** This unit is review and also provides opportunities to extend skills and concepts into working with larger numbers and bigger ideas.

### Unit Standards

#### Priority Standards

##### 4.OA.A Use the four operations with the whole numbers to solve problems.

- 4.OA.2 Multiply or divide to solve word problems 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.
- 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.NBT.B Use place value understanding and properties of operations to perform multi-digit arithmetic.

- 4.NBT.5 Multiply a whole number (up to) a 4-digit number by a 1-digit number using strategies based on place value and the properties of operations, and multiply two 2-digit numbers using strategies based on place value and the properties of operations. Illustrate and explain the multiplication calculation using equations, rectangular arrays, and/or area models.

#### Supporting Standards

##### 4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

- 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 a smaller unit. Record measurement equivalents in a 2-column table.
- 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.

### Learning Targets

#### 4th Grade Priority:

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"><li>• Module 1 Session 1</li><li>• Module 4 Session 3-4</li></ul>	<b>MP.6</b> <ul style="list-style-type: none"><li>• Module 1 Session 1, 3, 6-7</li><li>• Module 2 Session 3-4</li><li>• Module 4 Session 4</li></ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"><li>• Module 1 Session 2-3, 5, 7</li><li>• Module 2 Session 2</li></ul>	<b>MP.3</b> <ul style="list-style-type: none"><li>• Module 1 Session 3</li><li>• Module 2 Session 2, 4</li></ul>

	<ul style="list-style-type: none"> <li>• Module 3 Session 2</li> <li>• Module 4 Session 2</li> </ul>	<ul style="list-style-type: none"> <li>• Module 3 Session 1, 3</li> <li>• Module 4 Session 3</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>• Module 3 Session 1, 4-5</li> <li>• Module 4 Session 1</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>• Module 3 Session 3</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b> Module 1 Session 4, 6 Module 3 Session 1, 4-5 Module 4 Session 1	<b>MP.8</b> <ul style="list-style-type: none"> <li>• Module 1 Session 4-5</li> <li>• Module 2 Session 3</li> <li>• Module 3 Session 2</li> <li>• Module 4 Session 2</li> </ul>

**4th Grade Priority:**

- I multiply or divide to solve word problems involving multiplicative comparison by using drawings or writing equations with a variable. (4.OA.2)
  - Module 2 Session 1: Bowling for Equations
- I solve multi-step word problems using all operations and write a corresponding number sentence using a variable for the unknown. (4.OA.3)
  - Module 2 Session 1: Bowling for Equations
  - Module 2 Session 2: Using Grouping Symbols
  - Module 2 Session 3: Variables & Expressions
  - Module 2 Session 4: Writing & Solving Equations
  - Module 3 Session 1: Revisiting Single-Digit Multiplication
  - Module 3 Session 3: Think Before You Multiply
  - Module 3 Session 4: Double-digit Quick Sketches
- I multiply (up to) a 4-digit number by a 1-digit number using words, equations, arrays, and/or number models (4.NBT.5)
  - Module 3 Session 1: Revisiting Single-Digit Multiplication
  - Module 3 Session 2: Introducing the Standard Multiplication Algorithm
  - Module 3 Session 3: Think Before You Multiply
  - Module 3 Session 4: Double-Digit Quick Sketches
  - Module 3 Session 5: Four Partial Products
  - Module 4 Session 1: Working with a Two-Part Area Model
  - Module 4 Session 2: Extending the Standard Multiplication Algorithm
  - Module 4 Session 3: Reviewing & Evaluating Multiplication Methods

**4th Grade Supporting:**

- I find equivalent measurement conversions in the US Customary System, including those with fractions and those in a number stories. (4.MD.1)
  - Module 1 Session 2: Patterns in Measurement Conversions
- I find equivalent measurement conversions in the Metric System, including those with decimals and those in number stories. (4.MD.1)
  - Module 1 Session 2: Patterns in Measurement Conversions
- I record measurement equivalents in a 2-column table. (4.MD.1)
  - Module 1 Session 2: Patterns in Measurement Conversions
- I use the four operations to solve number stories involving distances, intervals of time, liquid

volumes, masses of objects, and money, including problems that require expressing measurements given in a larger unit in terms of a smaller unit. (4.MD.2)

- Module 4 Session 3: Reviewing & Evaluating Multiplication Methods
- I generate a number or shape pattern using a rule or find the rule, continue the pattern, and explain my thinking. (4.OA.5)
  - Module 1 Session 3: A Tile Sequence
  - Module 1 Session 4: Describing Patterns
  - Module 1 Session 5: Odd & Even Numbers
  - Module 1 Session 6: A Sequence of Linear Pieces
  - Module 1 Session 7: The Function Machine Game
- I notice and identify features of a pattern that was created by a rule. (4.OA.5)
  - Module 1 Session 3: A Tile Sequence
  - Module 1 Session 4: Describing Patterns
  - Module 1 Session 5: Odd & Even Numbers
  - Module 1 Session 6: A Sequence of Linear Pieces
  - Module 1 Session 7: The Function Machine Game

### Assessment Evidence

#### Performance Assessment Options

*May include, but are not limited to the following:*

- Bridges Unit Pre Assessment
- Bridges Unit Checkpoints
- Bridges Unit Post Assessment

#### Other assessment options

*May include, but are not limited to the following:*

- Bridges Unit Observational Assessments
- Student Work Samples
- Classroom Exit Tickets

### Digital Tools & Supplementary Resources

Bridges Intervention  
ALEKS and Dreambox

## Unit 8 - Playground Design

**Unit Overview:** This unit has students design and build scaled model playgrounds that incorporate simple machines.

### Unit Standards

#### Supporting Standards

**4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.**

- 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 a smaller unit. Record measurement equivalents in a 2-column table.

- **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.
  - **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.MD.C Geometric measurement: understand concepts of angle and measure angles.**
- **4.MD.5** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
  - **4.MD.6** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

### Learning Targets

#### 4th Grade Priority:

Mathematical Practice Standard Connections		
<b>Habits of Mind</b>	<b>MP.1</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1</li> <li>• Module 3 Session 5</li> <li>• Module 4 Session 1</li> </ul>	<b>MP.6</b> <ul style="list-style-type: none"> <li>• Module 1 Session 2-6</li> <li>• Module 2 Session 1</li> <li>• Module 3 Session 2-4</li> <li>• Module 4 Session 2-3</li> </ul>
<b>Reasoning &amp; Explaining</b>	<b>MP.2</b> <ul style="list-style-type: none"> <li>• Module 1 Session 3-5</li> <li>• Module 3 Session 6</li> </ul>	<b>MP.3</b> <ul style="list-style-type: none"> <li>• Module 1 Session 1</li> <li>• Module 2 Session 2, 5</li> <li>• Module 3 Session 6</li> </ul>
<b>Modeling &amp; Tools</b>	<b>MP.4</b> <ul style="list-style-type: none"> <li>• Module 2 Session 2-5</li> <li>• Module 3 Session 1-5</li> <li>• Module 4 Session 1</li> </ul>	<b>MP.5</b> <ul style="list-style-type: none"> <li>• Module 1 Session 2, 6</li> <li>• Module 2 Session 1, 3-4</li> <li>• Module 3 Session 1</li> <li>• Module 4 Session 2-3</li> </ul>
<b>Seeing Structure &amp; Generalizing</b>	<b>MP.7</b>	<b>MP.8</b>

#### 4th Grade Supporting:

- I find equivalent measurement conversions in the US Customary System, including those with fractions and those in a number stories. (4.MD.1)
  - Module 1 Session 2: Planting Our Field
  - Module 1 Session 3: Investigating Playground Equipment
  - Module 1 Session 5: Angle of the Slide
  - Module 2 Session 1: The Current Playground
  - Module 3 Session 2: Drawing to Scale
  - Module 3 Session 3: Drawing Our Playground to Scale

- Module 2 Session 5: Analyzing the School Data
- Module 4 Session 1: Planning Our Model Playground
- Module 4 Session 2: Building Our Model Playground
- Module 4 Session 3: The Playground Model Showcase
- I find equivalent measurement conversions in the Metric System, including those with decimals and those in number stories. (4.MD.1)
  - Module 1 Session 2: Planting Our Field
  - Module 1 Session 3: Investigating Playground Equipment
  - Module 1 Session 5: Angle of the Slide
  - Module 2 Session 1: The Current Playground
  - Module 3 Session 2: Drawing to Scale
  - Module 3 Session 3: Drawing Our Playground to Scale
  - Module 3 Session 5: The New Field
  - Module 4 Session 1: Planning Our Model Playground
  - Module 4 Session 2: Building Our Model Playground
  - Module 4 Session 3: The Playground Model Showcase
- I record measurement equivalents in a 2-column table. (4.MD.1)
  - Module 1 Session 3: Investigating Playground Equipment
  - Module 1 Session 5: Angle of the Slide
  - Module 2 Session 1: The Current Playground
  - Module 3 Session 2: Drawing to Scale
  - Module 3 Session 3: Drawing Our Playground to Scale
  - Module 3 Session 5: The New Field
  - Module 4 Session 1: Planning Our Model Playground
  - Module 4 Session 2: Building Our Model Playground
  - Module 4 Session 3: The Playground Model Showcase
- I use the four operations to solve number stories involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems that require expressing measurements given in a larger unit in terms of a smaller unit. (4.MD.2)
  - Module 1 Session 2: Planting Our Field
  - Module 1 Session 3: Investigating Playground Equipment
  - Module 1 Session 5: Angle of the Slide
  - Module 2 Session 1: The Current Playground
  - Module 2 Session 4: Researching Playground Costs
  - Module 3 Session 1-6
  - Module 4 Session 1: Planning Our Model Playground
  - Module 4 Session 2: Building Our Model Playground
  - Module 4 Session 3: The Playground Model Showcase
- I use a formula to calculate the perimeter and the area of a rectangle, including those in number stories. (4.MD.3)
  - Module 1 Session 2: Planting Our Field
  - Module 2 Session 1: The Current Playground
  - Module 3 Session 1: Planning Our New Playground
  - Module 3 Session 2: Drawing to Scale
  - Module 3 Session 3: Drawing Our Playground to Scale
  - Module 3 Session 5: The New Field
  - Module 3 Session 6: The Cost of the New Field

- I recognize angles as shapes that are formed wherever two rays share a common endpoint and are measured with a reference to a circle. (4.MD.5)
  - Module 1 Session 5: Angle of the Slide
  - Module 1 Session 6: Seating on the Merry-Go-Round
- I use a protractor to measure angles in whole number degrees. (4.MD.6)
  - Module 1 Session 4: Experimenting with Pendulums
  - Module 1 Session 5: Angle of the Slide
  - Module 1 Session 6: Seating on the Merry-Go-Round
  - Module 4 Session 1: Planning Our Model Playground
  - Module 4 Session 2: Building Our Model Playground
  - Module 4 Session 3: The Playground Model Showcase
- I can sketch angles of specified measure. (4.MD.6)
  - Module 1 Session 5: Angle of the Slide
  - Module 1 Session 6: Seating on the Merry-Go-Round
  - Module 4 Session 1: Planning Our Model Playground
  - Module 4 Session 2: Building Our Model Playground
  - Module 4 Session 3: The Playground Model Showcase

### Assessment Evidence

#### Performance Assessment Options

*May include, but are not limited to the following:*

- Bridges Unit Pre Assessment
- Bridges Unit Checkpoints
- Bridges Unit Post Assessment

#### Other assessment options

*May include, but are not limited to the following:*

- Bridges Unit Observational Assessments
- Student Work Samples
- Classroom Exit Tickets

### Digital Tools & Supplementary Resources

Bridges Intervention  
ALEKS and Dreambox