

# Waverly Mathematics Curriculum K-4

<u>Kindergarten</u>	<u>1<sup>st</sup> Grade</u>	<u>2<sup>nd</sup> Grade</u>	<u>3<sup>rd</sup> Grade</u>	<u>4<sup>th</sup> Grade</u>
<u>Count, Write, and Order Numbers</u>	<u>Count, Write, and Order Numbers</u>	<u>Count, write, and order whole numbers</u>	<u>Understand and use number notation and place value</u>	<u>Understand and use number notation and place value</u>
<u>Compose and Decompose Numbers</u>	<u>Add and Subtract Numbers</u>	<u>Understand place value</u>	<u>Count in steps, and understand even and odd numbers</u>	<u>Use factors and multiples</u>
<u>Add and Subtract Numbers</u>	<u>Estimate, measure length and, tell time</u>	<u>Add and subtract whole numbers</u>	<u>Add and subtract whole numbers</u>	<u>Add and subtract whole numbers</u>
<u>Explore Number Patterns</u>	<u>Work with money and solve problems</u>	<u>Understand meaning of multiplication and division</u>	<u>Multiply and divide whole numbers</u>	<u>Multiply and divide whole numbers</u>
<u>Explore Concepts of Time</u>	<u>Create and describe shapes</u>	<u>Work with unit fractions</u>	<u>Problem-solving with whole numbers</u>	<u>Read, interpret and compare decimal fractions</u>
<u>Explore Other Measurement Attributes</u>	<u>Create and describe patterns involving geometric objects</u>	<u>Measure, add, and subtract length</u>	<u>Understand simple fractions, relation to the whole, and addition and subtraction of fractions</u>	<u>Understand fractions</u>
<u>Create, Explore, and Describe Shapes</u>	<u>Use pictographs</u>	<u>Understand the concept of area</u>	<u>Understand simple decimal fractions in relation to money</u>	<u>Add and subtract fractions</u>
<u>Explore Geometric Patterns</u>		<u>Tell time and solve time problems</u>	<u>Measure and use units for length, weight, temperature and time</u>	<u>Multiply fractions by whole numbers</u>

		<a href="#">Record, add and subtract money</a>	<a href="#">Understand meaning of area and perimeter and apply in problems</a>	<a href="#">Add and subtract decimal fractions</a>
		<a href="#">Read thermometers</a>	<a href="#">Estimate perimeter and area</a>	<a href="#">Multiply and divide decimal fractions</a>
		<a href="#">Solve measurement problems</a>	<a href="#">Solve measurement problems</a>	<a href="#">Estimate</a>
		<a href="#">Identify and describe shapes</a>	<a href="#">Recognize the basic elements of geometric objects</a>	<a href="#">Problem-solving</a>
		<a href="#">Use coordinate systems</a>	<a href="#">Name and explore properties of shapes</a>	<a href="#">Convert measurement units</a>
		<a href="#">Create, interpret, and solve problems involving pictographs</a>	<a href="#">Explore and name three-dimensional solids</a>	<a href="#">Use perimeter and area formulas</a>
			<a href="#">Use bar graphs</a>	<a href="#">Understand right angles and problem-solving</a>
				<a href="#">Understand perpendicular, parallel, and intersecting lines</a>
				<a href="#">Identify basic geometric shapes and their components, and solve problems</a>
				<a href="#">Recognize symmetry and transformations</a>
				<a href="#">Represent and solve problems for given data</a>

### **Waverly Community Schools K-4 Progress Report Marking**

Kindergarten Progress	1 <sup>st</sup> Grade Progress	2 <sup>nd</sup> Grade Progress	3 <sup>rd</sup> Grade Progress	4 <sup>th</sup> Grade Progress
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## Kindergarten Mathematics Curriculum

<b>K</b>	<b>The student will:</b>	<b>Assessments/Resources:</b>
Count, Write, and Order Numbers	<p>Count, using whole numbers and recognize how many objects are in sets up to 30.</p> <p>Count objects using one-to-one correspondence up to 30.</p> <p>Put in order sets of up to 30 objects and compare using such phrases as “same number”, “more than”, or “less than”.</p> <p>Read and write numeral to 30 and match them to the same number of objects.</p> <p>Count orally to 100 by ones. Count to 30 by 5’s and 10’s using grouped objects as needed.</p> <p>Compare and order numbers to 30.</p>	
Compose and Decompose Numbers	<p>Understand that the numbers to 30 can contain groups of ten plus some ones.</p> <p>Use objects to count by tens to 100.</p> <p>Put together and take apart numbers that total up to 10.</p> <p>Describe and make drawings to represent situations/stories involving putting together and taking apart for totals up to 10; use finger and object counting.</p>	
Add and Subtract Numbers	Recognize simple addition and subtraction sentences.	

Explore Number Patterns	Create, describe, and extend simple number patterns.	
Explore Concepts of Time	<p>Know and use the common words for the parts of the day.</p> <p>Know the common words for relative time.</p> <p>Identify tools that measure time.</p> <p>Identify times when daily activities occur to the nearest hour.</p>	
Explore Other Measurement Attributes	<p>Compare two or more objects by length, weight and capacity.</p> <p>Recognize which object is shorter, longer, heavier, lighter?</p> <p>Compare length and weight of objects by comparing to reference objects and use terms such as shorter, longer, taller, lighter, and heavier.</p> <p>Recognize which container holds more or less water?</p>	
Create, Explore, and Describe Shapes	<p>Relate familiar three-dimensional objects inside and outside the classroom to their geometric name.</p> <p>Identify, sort, and group objects by attributes and identify objects that do not belong in a particular group</p>	
Explore Geometric Patterns	Create, describe, and extend simple geometric patterns.	

**1st Grade Mathematics Curriculum**

<b>1<sup>st</sup>Grade</b>	<b>The student will:</b>	<b>Assessments/Resources:</b>

Count, Write, and Order Numbers

Count to 110 by 1s, 2s, 5s, and 10s, starting from any number.

Count to 500 by 100s and 10s.

Use numbers to show position in a sequence.

Read and write numbers to 110 and match them to the same number of objects.

Put numbers in order to 110. Compare numbers using the phrases same as, more than, greater than, fewer than; use the = symbol.

Arrange small sets of numbers in increasing or decreasing order.

Identify one more than, one less than, 10 more than and 10 less than for any number up to 100.

When using a number line, know that a number to the left of a number is smaller and number to the right of a number is larger.

Count backward by 1s starting from any number between 1 and 100.

Explore place value by bundling straws into groups of tens and ones.

Add and Subtract Numbers

List number facts for 2 through 10.

Compare the difference of objects in two groups.

Add and subtract numbers less than 20.

Be able to solve and explain story problems using objects, pictures, and/or numerals.

Understand that subtraction is connected to addition.

Know all the addition facts up to 10 +10 and solve the related subtraction facts.

Find the missing numbers for addition

	<p>and subtraction facts.</p> <p>Add three one-digit numbers.</p> <p>Add and subtract in his/her head when the problem involves a 2-digit number and 1- digit number with out regrouping or carrying.</p>	
<p>Estimate, measure length and, tell time.</p>	<p>Measure the lengths of objects in non-standard units.</p> <p>Compare measure lengths using the words shorter, shortest, longer, longest, taller, tallest.</p> <p>Tell time on a twelve-hour clock fact to the hours and half hour.</p>	
<p>Work with money and solve problems</p>	<p>Name different coins and bills.</p> <p>Match one coin or bill to another way to form that same amount of money.</p> <p>Tell the amount of money they see/ have: using cents up to \$1.00.</p> <p>Use the symbols \$ and ¢.</p> <p>Add and subtract money in dollars only or in cents only.</p> <p>Solve one-step word problems using addition and subtraction, money and time, including ‘how much more or less, without missing units.’</p>	
<p>Create and describe shapes</p>	<p>Create and describe shapes.</p> <p>Describe common two-dimensional and three-dimensional shapes.</p> <p>Describe the position of objects using words such as above, below, behind, in front of.</p>	

<p>Create and describe patterns involving geometric objects</p>	<p>Create and describe patterns involving geometric objects.</p> <p>Create and describe patterns, such as repeating patterns, and growing patterns using number, shape and size.</p> <p>Tell the difference between a repeating pattern and a growing pattern.</p> <p>Predict the next element in a simple repeating pattern.</p> <p>Describe ways to get to the next element in simple repeating patterns.</p>	
<p>Use pictographs</p>	<p>Collect and organize data to use in pictographs.</p> <p>Read and interpret pictographs.</p> <p>Make pictographs of given data using both horizontal and vertical graphs.</p>	

**2nd Grade Mathematics Curriculum**

<p><b>2nd Grade</b></p>	<p><b>The student will:</b></p>	<p><b>Assessments/Resources:</b></p>
<p>Count, write, and order whole numbers</p>	<p>Count to 1000 by 1s, 10s and 100s starting from any number in the sequence.</p> <p>Read and write numbers to 1000 in numerals and words, and relate them to the quantities they represent.</p> <p>Compare and order numbers to 1000; use the symbols <math>&gt;</math> and <math>&lt;</math>.</p> <p>Count orally by 3s and 4s starting with 0, and by 2s, 5s and 10s starting from any number.</p>	
<p>Understand place value</p>	<p>Express numbers up to 1000 using place value, e.g., 137 is 1 hundred, 3 tens, and 7 ones; use concrete materials.</p>	

Add and subtract whole numbers

Decompose 100 into additional pairs, e.g.,  $100 = 99 + 1 = 98 + 2 \dots$

Find the distance between numbers on the number line, e.g., how far is 79 from 26?

Find missing values in open sentences, e.g.,  $42 + ? = 57$ ; use relationship between addition and subtraction.

Given a contextual situation that involves addition and subtraction for numbers up to two digits: model using objects or pictures; explain in words; record using numbers and symbols; solve.

Add fluently two numbers up to two digits each, using strategies including formal algorithms; subtract fluently two numbers up to two digits each; simple regrouping only.

Estimate and calculate the sum of two numbers with three digits that do not require regrouping.

Calculate mentally sums and differences involving: three-digit numbers and ones; three-digit numbers and tens; three-digit numbers and hundreds.

Understand meaning of multiplication and division

Understand multiplication as the result of counting the total number of objects in a set of equal groups, e.g.,  $3 \times 5$  gives the number of objects in 3 groups of 5 objects, i.e.,  $3 \times 5 = 5 + 5 + 5 = 15$ .

Represent multiplication using area and array models.

Understand division ( $\div$ ) as another way of expressing multiplication, using fact families within the  $5 \times 5$  multiplication table; emphasize that division “undoes” multiplication, e.g.,  $2 \times 3 = 6$  can be rewritten as  $6 \div 2 = 3$



Tell time and solve time problems	Using both A.M. and P.M., tell and write time from the clock face in 5 minute intervals and from digital clocks to the minute; include reading time: “9:15” as “nine-fifteen” and “9:50” as nine-fifty; interpret time both as minutes after the hour and minutes before the next hour, e.g., 8:50 as eight-fifty and ten to nine. Show times by drawing hands on clock face. Use the concept of duration of time.	
Record, add and subtract money	Read and write amounts of money using decimal notations. Add and subtract money in mixed units.	
Read thermometers	Read temperature using the scale on a thermometer in degrees Fahrenheit.	
Solve measurement problems	Solve simple word problems involving length and money	
Identify and describe shapes	Identify, describe, and compare familiar two-dimensional and three-dimensional shapes such as triangles, rectangles, squares, circles, semi-circles, spheres and rectangular prisms. Explore and predict the results of putting together and taking apart two-dimensional and three-dimensional shapes. Draw rectangles and triangles, and compute perimeters by adding lengths of sides, recognizing the meaning of perimeter. Distinguish between curves and straight lines and between curved surfaces and flat surfaces. Classify familiar plane and solid objects, e.g., square, rectangle, rhombus, cube, pyramid, prism, cone, cylinder, and sphere, by common attributes such as shape, size, color, roundness, or number of corners and	

	<p>explain which attributes are being used for classification.</p> <p>Recognize that shapes that have been slid, turned or flipped are the same shape, e.g., a square rotated <math>45^\circ</math> is still a square.</p>	
Use coordinate systems	Find and name locations using simple coordinate systems such as maps and first quadrant grids.	
Create, interpret, and solve problems involving pictographs	<p>Make pictographs using a scale representation, using scales where symbols equal more than one.</p> <p>Read and interpret pictographs with scales, using scale factors of 2 and 3.</p> <p>Solve problems using information in pictographs; include scales such as each <math>\bigcirc</math> represents 2 apples; avoid cases.</p>	

**3rd Grade Mathematics Curriculum**

<b>3rd Grade</b>	<b>The student will:</b>	<b>Assessments/Resources:</b>
Understand and use number notation and place value	<p>Read and write numbers to 10,000 in both numerals and words, and relate them to the quantities they represent.</p> <p>Recognize and use expanded notation for numbers using place value to 10,000s place, e.g., 2,517 is 2 thousands, 5 hundreds, 1 ten, and 7 ones; 4 hundreds and 2 ones is 402.</p> <p>Identify the place value of a digit in a number, e.g., in 3,241, 2 is in the hundreds place.</p> <p>Compare and order numbers up to 10,000.</p>	

Count in steps, and understand even and odd numbers	<p>Count orally by 6s, 7s, 8s and 9s starting with 0, making the connection between repeated addition and multiplication.</p> <p>Know that even numbers end in 0, 2, 4, 6, or 8; name a whole number quantity that can be shared in two equal groups or grouped into pairs with no remainders; recognize even numbers as multiples of 2. Know that odd numbers end in 1, 3, 5, 7, or 9, and work with patterns involving even and odd numbers.</p>	
Add and subtract whole numbers	<p>Add and subtract fluently two numbers, up to two-digit numbers with regrouping and up to four-digit numbers without regrouping.</p> <p>Estimate the sum and difference of two numbers with three digits (sums up to 1,000), and judge reasonableness of estimates.</p> <p>Use mental strategies to fluently add and subtract two-digit numbers.</p>	
Multiply and divide whole numbers	<p>Use multiplication and division fact families to understand the inverse relationship of these two operations; express a multiplication statement as an equivalent division statement.</p> <p>Recognize situations that can be solved using multiplication and division including finding “How many groups?” and “How many in a group?” Write mathematical statements for those situations.</p> <p>Find products fluently up to <math>10 \times 10</math>; find related quotients using multiplication and division relationships.</p> <p>Find solutions to open sentences such as <math>7 \times ? = 42</math> or <math>12 \div ? = 4</math>, using the inverse relationship between multiplication and division.</p> <p>Mentally calculate simple products and</p>	

	<p>quotients up to a three-digit number by a one digit number involving multiples of 10.</p> <p>Solve simple division problems involving remainders, viewing remainder as the “number left over” (less than the divisor).</p>	
<p>Problem-solving with whole numbers</p> <p>Understand simple fractions, relation to the whole, and addition and subtraction of fractions</p>	<p>Given problems that use any one of the four operations with appropriate numbers, represent with objects, words (including “product” and “quotient”), and mathematical statements, and solve.</p> <p>Understand that fractions may represent a portion of a whole unit that has been partitioned into parts of equal area or length; use the terms “numerator” and “denominator.”</p> <p>Recognize, name and use equivalent fractions with denominators 2, 4, and 8, using strips as area models.</p> <p>Place fractions with denominators of 2, 4, and 8 on the number line; relate the number line to a ruler; compare and order up to three fractions with denominators 2, 4, and 8.</p> <p>Understand that any fraction can be written as a sum of unit fractions, e.g., <math>\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}</math>.</p> <p>Recognize that addition and subtraction of fractions with equal denominators can be modeled by adjoining or taking away segments on the number line.</p>	
<p>Understand simple decimal fractions in relation to money</p>	<p>Understand the meaning of \$0.50 and \$0.25 related to money.</p>	

<p>Measure and use units for length, weight, temperature and time</p>	<p>Know and use common units of measurements in length, weight and time.</p> <p>Measure in mixed units within the same measurement system for length, weight and time: feet and inches, meters and centimeters, kilograms and grams, pounds and ounces, liters and milliliters, hours and minutes, minutes and seconds, years and months.</p> <p>Understand re Know benchmark temperatures such as freezing, 32°F, 0°C; boiling, 212°F, 100°C; and compare temperatures to these, e.g., cooler, warmer, relationships between sizes of standard units.</p>	
<p>Understand meaning of area and perimeter and apply in problems</p>	<p>Know the definition of area and perimeter and calculate the perimeter of a square and rectangle given whole number side lengths.</p> <p>Use square units in calculating area by covering the region and counting the number of square units.</p> <p>Distinguish between units of length and area and choose a unit appropriate in the context.</p> <p>Visualize and describe the relative sizes of one square inch and one square centimeter.</p>	
<p>Estimate perimeter and area</p>	<p>Estimate the perimeter of a square and rectangle in inches and centimeters; estimate the area of a square and rectangle and square inches and square centimeters.</p>	

<p>Solve measurement problems</p>	<p>Add and subtract lengths, weights and times using mixed units within the same measurement system.</p> <p>Add and subtract money in dollars and cents.</p> <p>Solve applied problems involving money, length and time.</p> <p>Solve contextual problems about perimeters of rectangles and areas of rectangular regions.</p>	
<p>Recognize the basic elements of geometric objects</p>	<p>Identify points, line segments, lines and distance.</p> <p>Identify perpendicular lines and parallel lines in familiar shapes and in the classroom.</p> <p>Identify parallel faces of rectangular prisms, in familiar shapes and in the classroom.</p>	
<p>Name and explore properties of shapes</p>	<p>Identify, describe, compare and classify two-dimensional shapes.</p> <p>Compose and decompose triangles and rectangles to form other familiar two-dimensional shapes.</p>	
<p>Explore and name three-dimensional solids</p>	<p>Identify, describe, build and classify familiar three-dimensional solids.</p> <p>Represent front, top, and side views of solids built with cubes.</p>	
<p>Use bar graphs</p>	<p>Read and interpret bar graphs in both horizontal and vertical forms.</p> <p>Read scales on the axes and identify the maximum, minimum, and range of values in a bar graph.</p> <p>Solve problems using information in bar graphs including comparison of bar graphs.</p>	

## 4th Grade Mathematics Curriculum

4th Grade	The student will:	Assessments/Resources:
Understand and use number notation and place value	<p>Read and write numbers to 1,000,000; relate them to the quantities they represent and compare and order</p> <p>Compose and decompose numbers using place value to 1,000,000s.</p> <p>Understand the magnitude of numbers up to 1,000,000; recognize the place values of numbers, and the relationship of each place value to the place to its right.</p>	
Use factors and multiples	<p>Find all factors of a whole number up to 50, and list factor pairs.</p> <p>List the first ten multiples of a given one-digit whole number; determine if a whole number is a multiple of a given one-digit whole number and if a one-digit number is a factor of a given whole number.</p> <p>Know that some numbers including 2, 3, 5, 7, and 11 have exactly two factors (1 and the number itself) and are called prime numbers.</p> <p>Solve problems about factors and multiples.</p>	
Add and subtract whole numbers	Add and subtract whole numbers fluently.	

Multiply and divide whole numbers

Multiply two-digit numbers by 2, 3, 4, and 5, using the distributive property.

Multiply fluently any whole number by a one-digit number, and a three-digit number by a two-digit number; for a two-digit by one-digit multiplication, use distributive property to develop meaning for the algorithm.

Divide numbers up to four digits by one-digit numbers and by 10.

Find unknowns in equations.

Use the relationship between multiplication and division to simplify computations and check results.

Solve applied problems involving whole number multiplication and division.

Read, interpret and compare decimal fractions

Read and interpret decimals up to two decimal places; relate to money and place value decomposition.

Know that terminating decimals represents fractions whose denominators are 10,  $10 \times 10$ ,  $10 \times 10 \times 10$ , etc., e.g., powers of 10.

Locate tenths and hundredths on a number line.

Read, write, interpret, and compare decimals up to two decimal places.

Write tenths and hundredths in decimal and fraction forms, and know the decimal equivalents for halves and fourths.

## Understand fractions

Understand fractions as parts of a set of objects.

Explain why equivalent fractions are equal, using area models such as fraction strips, or the number line, for fractions with denominators of 12 or less, or equal to 100.

Locate and compare fractions on the number line, including improper fractions and mixed numbers with denominators of 12 or less.

Understand the relationships among halves, fourths and eighths and among thirds, sixths and twelfths.

Know that fractions of the form  $m/n$  where  $m$  is greater than  $n$ , are greater than 1 and are called improper fractions; locate improper fractions on the number line; express as mixed numbers.

Write improper fractions as mixed numbers, and understand that a mixed number represents the number of “wholes” and the part of a whole remaining.

Compare and order up to three fractions with denominators 2, 4, and 8, and 3, 6, and 12, including improper fractions and mixed numbers.

## Add and subtract fractions

Add and subtract fractions less than 1 with denominators 12 or less and including 100, in cases where the denominators are equal or when one denominator is a multiple of the other.

Solve fraction problems involving sums and differences for fractions where one denominator is a multiple of the other (denominators 2 through 12, and 100).

Solve for the unknown in equations.

Multiply fractions by whole numbers	Multiply fractions by whole numbers, using repeated addition and area or array models.	
Add and subtract decimal fractions	Use mathematical statements to represent problems that use addition and subtraction of decimals with up to two-digits; solve. Add and subtract decimals up to two decimal places.	
Multiply and divide decimal fractions	Multiply and divide decimals up to two decimal places by a one-digit whole number where the result is a terminating decimal	
Estimate	Estimate the answers to calculations involving addition, subtraction, or multiplication. Know when approximation is appropriate and use it to check the reasonableness of answers; be familiar with common place-value errors in calculations.	
Problem-solving	Measure using common tools and select appropriate units of measure. Give answers to a reasonable degree of precision in the context of a given problem and relative to the measurement tool used. Measure and compare integer temperatures in degrees, both Celsius and Fahrenheit. Measure surface area of cubes and rectangular prisms by covering and counting area of the faces.	

Convert measurement units	Carry out the following conversions from one unit of measure to a larger or smaller unit of measure: meters to centimeters, kilograms to grams, liters to milliliters, hours to minutes, minutes to seconds, years to months, weeks to days, feet to inches, ounces to pounds (using numbers that involve only simple calculations).	
Use perimeter and area formulas	<p>Know and understand the formulas for perimeter and area of a square and a rectangle; calculate the perimeters and areas of these shapes and combinations of these shapes using the formulas.</p> <p>Find one dimension of a rectangle given the other dimension and its perimeter or area.</p> <p>Find the side of a square given its perimeter or area.</p> <p>Solve contextual problems about perimeter and area of squares and rectangles in compound shapes.</p>	
Understand right angles and problem-solving	<p>Identify right angles and compare angles to right angles.</p> <p>Solve contextual problems about surface area.</p>	
Understand perpendicular, parallel, and intersecting lines	Identify and draw perpendicular, parallel, and intersecting lines using a ruler and a tool or object with a square ( $90^\circ$ ) corner.	

<p>Identify basic geometric shapes and their components, and solve problems</p>	<p>Identify basic geometric shapes including isosceles, equilateral and right triangles, and use their properties to solve problems.</p> <p>Identify and count the faces, edges, and vertices of basic three-dimensional geometric solids including cubes, rectangular prisms, and pyramids; describe the shape of their faces.</p>	
<p>Recognize symmetry and transformations</p>	<p>Recognize plane figures that have line symmetry.</p> <p>Recognize rigid motion transformations (flips, slides, turns) of a two-dimensional object.</p>	
<p>Represent and solve problems for given data</p>	<p>Construct tables and bar graphs from given data.</p> <p>Order a given set of data, find the median, and specify the range of values.</p> <p>Solve problems using data presented in tables and bar graphs.</p>	