

TOUCHMATH[®]
SCOPE AND SEQUENCE

Pre-K
Grades K-5
Upper Grades



Scope and Sequence

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Introduction

TouchMath® Scope and Sequence is a comprehensive exhibit of skills and learning objectives, designed to clearly outline the scaffolding of the content throughout the TouchMath® Program: Pre-K (©2022), Kindergarten (©2022), Grade 1 (©2022), Grade 2 (©2022), Grade 3 (©2026), Grade 4 (©2026), Grade 5 (©2026), and Upper Grades (©2022).

The document is organized by domain, cluster, skill, and aligned by grade. Scaffolding is evident through review of this document, designed to address each step of the developmental process for students to learn to use numbers to compute, reason, and think. Problem solving with numbers is the end result.

The scaffolding is two-fold: content and approach. The content in the skills is task-analyzed and broken down into small-size chunks that are often needed for learners requiring intervention and/or special education. The CRA approach incorporates Concrete (kinesthetic), Representational (visual), and Abstract techniques. Both the content and approach are scaffolded to build access for learners and pave the road for independence in working with numbers.

The TouchMath® Program is aligned with current rigorous state standards and follows state ESSA plans that mandate a culture of high expectations for all students – including students who need remedial support, students benefiting from RtI and MTSS interventions, Special Education students with IEPs, and students with dyscalculia or other learning disabilities. The CRA approach allows all students to access a range of tools for building the foundational math skills they must master if they are to succeed in critical math domains and for career and college readiness.

The TouchMath® Scope and Sequence can be used to chart the course for students in primary classrooms in general education, in intervention programs, and in IEPs for Special Education learners. The thorough analysis of skills makes it an easy tool for teachers to use to ensure the steps needed to learn mathematics. The various presentations of this tool provide options for teachers and administrators to determine the level of the content and approach that meets the needs of individual learners.



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Counting and Cardinality

Know number names and the count sequence.

Count aloud to 10 by ones.



Count aloud to 100 by ones and tens.



Count forward from any given number.



Write numbers from 0 to 20.



Represent up to 20 objects with a written numeral.



Count to tell the number of objects.

Connect counting to cardinality.



Understand that numbers represent specific quantities.



Understand that counting determines the total number of objects.



Count objects while saying number names in the correct order.



Match each object counted with one and only one number name.



Answer "How many are there?" after counting a group of objects.



Understand that each number in the counting sequence represents a quantity one greater than the previous number.



Count to determine how many objects are in a scattered group of up to 10.



Count to determine how many objects are in a line, array, or circle with up to 20 items.



Given a number up to 20, count out that many items.



Counting and Cardinality continued

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Compare numbers.

Compare equal and unequal groups.



Compare the number of objects in two groups using manipulatives, matching, or visual supports.



Compare the number of objects in two groups by counting.



Compare two written numbers between 1 and 10.



Operations and Algebraic Thinking

Understand addition and subtraction.

Represent addition using a range of models.



Represent subtraction using a range of models.



Add within 10 using objects and drawings.



Subtract within 10 using objects and drawings.



Make 10 using objects and drawings.



Decompose numbers up to 10 in multiple ways.



For any number from 1 to 9, find the number that makes 10.



Represent and solve addition and subtraction.

Use addition and subtraction within 20 to solve word problems using a range of models.



Solve addition problems within 20 with three addends using a range of models.



Use addition and subtraction within 100 to solve word problems using a range of models.



Recognize that numbers can be added in any order and still have the same total.



Group numbers in different ways to explore how the total remains the same.



Solve addition problems by changing the order of addends.



Operations and Algebraic Thinking continued

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Understand and apply properties of operations and the relationship between addition and subtraction.

Apply the commutative property to solve addition and subtraction problems efficiently.



Apply the associative property to add three numbers by grouping them in different ways.



Relate counting to addition and subtraction.



Add and subtract within 20 using a range of models.



Fluently add and subtract within 20.



Add and subtract within 20.

Understand the meaning of the equal sign.



Determine whether an addition or subtraction equation is true or false.



Solve for the unknown in an addition equation.



Work with addition and subtraction equations.

Solve for the unknown in a subtraction equation.



Determine whether a group of objects has an even or odd number of objects.



Use addition to find the total number of objects arranged in a rectangular array.



Understand multiplication as the product of the number of equal groups of objects.



Work with equal groups of objects to gain foundations for multiplication.

Understand division as partitioning a group of objects into smaller equal groups.



Multiply within 100 to solve problems.



Represent and solve problems involving multiplication and division.

Divide within 100 to solve problems.



Determine the unknown in a multiplication equation.



Determine the unknown in a division equation.



Apply properties of operations as strategies to multiply and divide.



Understand division as an unknown-factor problem.



Fluently multiply within 100 using various strategies and models.



Understand properties of multiplication and the relationship between multiplication and division.

Fluently divide within 100 using various strategies and models.



Fluently multiply and divide within 100.



Multiply and divide within 100.

Solve two-step problems using the four operations and a range of models.



Represent the unknown in an equation with a letter or symbol.



Use estimation strategies to solve equations.



Solve problems involving the four operations, and identify and explain patterns in arithmetic.

Identify arithmetic patterns.



Explain arithmetic patterns using properties of operations.



Interpret multiplication as a comparison.



Solve problems involving multiplicative comparison.



Distinguish multiplicative comparison from additive comparison.



Operations and Algebraic Thinking continued

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Use the four operations with whole numbers to solve problems.

Solve multi-step problems with whole numbers using the four operations.



Find all factor pairs for a whole number up to 100.



Recognize that a whole number is a multiple of each of its factors.



Determine whether a given number is prime or composite.



Gain familiarity with factors and multiples.

Generate a number or shape pattern that follows a given rule.



Identify features of a pattern that are not explicit in the rule.



Use parentheses, brackets, or braces in numerical expressions.



Generate and analyze patterns.

Recognize simple patterns and predict the extension of a pattern.



Generate a number or shape pattern that follows a given rule.



Evaluate expressions with parentheses, brackets, or braces.



Write simple expressions that record calculations with numbers.



Write and interpret numerical expressions.

Generate two numerical patterns using two given rules.



Identify relationships between corresponding terms.



Form ordered pairs from two patterns.



Analyze patterns and relationships.

Graph ordered pairs on a coordinate plane.



Compose numbers from 11 to 19.



Decompose numbers from 11 to 19.



Graph ordered pairs on a coordinate plane.



Number and Operations in Base Ten

Work with numbers 11–19 to gain foundations for place value.

Compose numbers from 11 to 19.



Decompose numbers from 11 to 19.



Understand that teen numbers are composed of ten ones and some more ones.



Extend the counting sequence.

Count to 120, starting at any number less than 120.



Read and write numerals.



Represent a number of objects with a written numeral.



Understand place value.

Understand that the two digits of a two-digit number represent amounts of tens and ones.



Skip count by 5, 10, and 100.



Understand that 10 can be thought of as a bundle of ten ones.



Understand that numbers from 11 to 19 are composed of a ten and some ones.



Understand the structure of the base-ten place value system.



Understand that multiples of 10 refer to one through nine tens.



Compare two two-digit numbers based on the meanings of the tens and ones digits, using the symbols $>$, $=$, and $<$.



Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.



Count within 1,000.



Read and write numbers to 1,000 using base-ten numerals, number names, and expanded form.



Compare two three-digit numbers based on the meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols.



Understand place value. (continued)

Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and one-tenth of what it represents in the place to its left.



Explain patterns in the number of zeros of the product when multiplying a number by powers of 10.



Use whole-number exponents to denote powers of 10.



Read, write, and compare decimals to the thousandths.



Use place value understanding to round decimals to any place.



Use place value understanding and properties of operations to add and subtract.

Add a two-digit number and a one-digit number using a range of models.



Mentally find 10 more or 10 less than a given number.



Subtract multiples of 10 using a range of strategies and models.



Add or subtract within 100 using a range of strategies and models.



Add up to four two-digit numbers using a range of strategies and models.



Add and subtract within 1,000 using a range of strategies and models.



Mentally add or subtract 10 or 100 to a given number from 100 to 900.



Use place value understanding and properties of operations to perform multi-digit arithmetic.

Use place value understanding to round whole numbers to the nearest 10 or 100.



Fluently add and subtract within 1,000 using a range of strategies and models.



Multiply one-digit whole numbers by multiples of 10 in the range 10–90.



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.



Generalize place value understanding for multi- digit whole numbers.

Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form.



Compare two multi-digit numbers based on the meanings of the digits in each place, using $>$, $=$, and $<$ symbols.



Use place value understanding to round multi-digit whole numbers.



Perform operations with multi-digit whole numbers and with decimals to hundredths.

Add, subtract, multiply, and divide decimals to hundredths.



Number and Operations – Fractions

Develop understanding of fractions as numbers.

Understand what a fraction is.



Represent fractions on the number line.



Relate whole numbers and fractions.



Recognize and generate simple equivalent fractions.



Express whole numbers as fractions.



Recognize fractions that are equivalent to whole numbers.



Compare two fractions with the same numerator.



Compare two fractions with the same denominator.



Compare two fractions using the symbols $>$, $=$, or $<$.



Extend understanding of fraction equivalence and ordering.

Explain the equivalence of fractions.



Relate fraction equivalence to size.



Relate fraction equivalence to the number line.



Generate equivalent fractions.



Extend understanding of fraction equivalence and ordering. (continued)

Explain fraction equivalence.



Express fractions with a denominator of 10 as equivalent fractions with a denominator of 100.



Build fractions from unit fractions.

Understand a fraction with as a sum of fractions with numerator 1 and denominator .



Understand addition and subtraction of fractions as joining and separating parts that refer to the same whole.



Add and subtract mixed numbers with like denominators.



Operations with fractions.

Add fractions with like denominators.



Add mixed numbers with like denominators.



Subtract fractions with like denominators.



Subtract mixed numbers with like denominators.



Solve problems involving the addition and subtraction of fractions.



Add fractions with unlike denominators.



Subtract fractions with unlike denominators.



Solve problems involving the addition of fractions with unlike denominators.



Solve problems involving the subtraction of fractions with unlike denominators.



Multiply a fraction by a whole number.



Multiply fractions.



Interpret multiplication as scaling.



Solve problems involving the multiplication of fractions.



Solve problems involving the division of whole numbers with quotients that are fractions.



Divide fractions by whole numbers and whole numbers by fractions.



Understand decimal notation for fractions, and compare decimal fractions.

Add two fractions with denominators of 10 and 100.



Write decimal fractions using decimal notation.



Compare two decimals to the hundredths by reasoning about their size.



Use equivalent fractions as a strategy to add and subtract fractions.

Add and subtract fractions with unlike denominators using a range of models.



Solve word problems involving the addition and subtraction of fractions referring to the same whole, including cases with unlike denominators, using a range of models.



Apply and extend previous understandings of multiplication and division.

Interpret a fraction as the division of the numerator by the denominator.



Solve word problems involving the division of whole numbers leading to answers in the form of fractions or mixed numbers, for example by using visual fraction models or equations to represent the problem.



Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.



Find the area of a rectangle with fractional side lengths by tiling it with unit squares.



Interpret multiplication as scaling.



Solve real-world problems involving the multiplication of fractions and mixed numbers.



Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.



Measurement and Data

Describe and compare measurable attributes.

Describe measurable attributes of objects, such as length or weight.



Directly compare two objects with a measurable attribute in common.



Classify objects and count the number of objects in each category.

Classify objects into given categories.



Count the number of objects in each category and sort the categories by count.



Measure and estimate lengths.

Order three objects by length.



Compare the lengths of two objects indirectly by using a third object.



Measure the length of an object by selecting and using appropriate tools.



Measure the length of an object twice, using length units of different lengths for the two measurements.



Estimate lengths using units of inches, feet, centimeters, and meters.



Measure to determine how much longer one object is than another.



Compare the lengths of two objects.



Relate addition and subtraction to length.

Use addition within 100 to solve problems involving length.



Use subtraction within 100 to solve problems involving length.



Represent whole numbers as lengths on a number line.



Show sums and differences within 100 on a number line.



Solve problems involving measurement and estimation.

Solve word problems involving the addition and subtraction of time intervals in minutes.



Tell and write time to the nearest minute and measure time intervals in minutes.



Record measurement equivalents in a two-column table.



Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).



Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes given in the same units.



Solve problems involving measurement and conversion of measurements.

Know the relative sizes of measurements within one system of measurement.



Express measurements in a larger unit in terms of a smaller unit.



Record measurement equivalents in a two-column table.



Solve problems involving distances, intervals of time, liquid volumes, masses of objects, and money.



Represent measurement quantities using diagrams, such as number line diagrams.



Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.



Convert like measurement units within a given measurement system.

Convert among different-sized standard measurement units within a given measurement system.



Use conversions to solve multi-step, real-world problems.



Measurement and Data continued

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Represent and interpret data.

Organize, represent, and interpret data with up to three categories.



Ask and answer questions about the total number of data points, how many are in each category, and how many more or fewer are in one category than in another.



Generate measurement data by measuring lengths of several objects to the nearest whole unit.



Show measurements by making a line plot, where the horizontal scale is marked off in whole-number units.



Draw a picture graph and a bar graph to represent a data set with up to four categories.



Solve simple put-together, take-apart, and compare problems using information from a graph.



Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.



Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch.



Make a line plot to display a data set of measurements in fractions of a unit.



Solve problems involving the addition and subtraction of fractions by using information presented in line plots.



Make a line plot to display a data set of measurements in fractions of a unit.



Use operations on fractions for this grade to solve problems involving information presented in line plots.



Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Recognize area as an attribute of plane figures and understand concepts of area measurement.



Measure area by counting unit squares (square centimeters, square meters, square inches, square feet, and improvised units).



Relate area to the operations of multiplication and addition.



Apply the area formula for rectangles to solve problems.



Use area models to represent the distributive property.



Geometric measurement: recognize perimeter.

Find the perimeter of polygons given side lengths.



Determine an unknown side length given the perimeter and other side lengths.



Show rectangles with the same perimeter and different areas, and rectangles with the same area and different perimeters.



Solve problems involving the perimeters of polygons.



Apply the perimeter formula for rectangles to solve problems.



Geometric measurement: understand concepts of angle and measure angles.

Understand that angles are geometric shapes.



Understand concepts of angle measurement.



Measure angles in whole-number degrees using a protractor.



Sketch angles of specified measure.



Understand angle measure as additive.



Solve addition problems to find unknown angles.



Solve subtraction problems to find unknown angles.



Geometric measurement: understand concepts of volume.

Understand volume as an attribute of three-dimensional figures.



Understand concepts of volume measurement.



Measure volume by counting unit cubes.



Find the volume of a right rectangular prism by multiplying the edge lengths.



Represent three-fold whole number products as volumes to show the associative property.



Use the volume formula to determine volume.



Understand that volume is additive.



Find the volumes of composite three-dimensional figures.



Solve problems involving volume.



Tell and write time.

Tell time in hours and half-hours using analog and digital clocks.



Write time in hours and half-hours using analog and digital clocks.



Tell time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.



Write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.



Work with time and money.

Solve problems involving the addition of time intervals in minutes.



Solve problems involving the subtraction of time intervals in minutes.



Solve problems involving bills and coins.



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Geometry

Identify and describe shapes.

Describe shapes in the environment.



Describe the position of objects relative to other objects.



Recognize and name shapes of different sizes and orientations.



Understand that two-dimensional figures are flat.



Understand that three-dimensional figures are solid.



"Analyze, compare, create, and compose shapes.

Analyze and compare two-dimensional figures.



Analyze and compare three-dimensional figures.



Build and draw shapes that can be found in the world.



Compose simple shapes to form other shapes.



Describe attributes of shapes.



Reason with shapes and their attributes.

Distinguish between defining and non-defining attributes.



Build or draw shapes with given defining attributes.



Compose two-dimensional and three-dimensional figures.



Compose new shapes from composite shapes.



Recognize and draw two-dimensional and three-dimensional figures with specified attributes.



Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.



Reason with shapes and their attributes. (continued)

Understand that shapes in different categories may share attributes.



Understand that shared attributes of shapes can define a larger category.



Recognize rhombuses, rectangles, and squares as examples of quadrilaterals.



Classify two-dimensional figures in a hierarchy based on properties.



Compare and organize two-dimensional figures based on attributes.



Partition circles and rectangles into two and four equal shares.



Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.



Partition circles and rectangles into two, three, or four equal shares.



Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

Draw and identify points, lines, line segments, rays, and angles.



Draw and identify parallel and perpendicular lines.



Draw and identify right, acute, and obtuse angles.



Use angle measure to classify figures.



Identify figures with line symmetry.



Draw lines of symmetry.



Graph points on the coordinate plane to solve real-world and mathematical problems.

Understand a coordinate system.



Graph points in the first quadrant of the coordinate plane.



Interpret the coordinate values of points in the first quadrant of the coordinate plane.



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