# TOUCH**MATH**® 123
# SCOPE AND SEQUENCE

## STANDARDS-BASED PROGRAMS

PRE-K

KINDERGARTEN

FIRST GRADE

SECOND GRADE

**TOUCHMATH** 123

## Pre-K through Second Grade
## Standards-Based Scope and Sequence

TouchMath® Scope and Sequence is a comprehensive exhibit of clusters, standards, skills, and activities — designed to clearly outline the scaffolding of the content in the TouchMath® Pre-K, Kindergarten, First Grade, and Second Grade Standards-Based Programs.

Standards are organized by clusters (topics), standards (broad skills or outcomes), skills (more specific skills or objectives), and activities (step-by-step skills or approaches to ensure achievement of the skills). The activities and skills combine to create the standards. The skills define the content; the activities define the approach. 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 approach incorporates kinesthetic, visual, and abstract techniques. Both the content and approach are scaffolded to build success for learners and pave the road for independence in working with numbers.

TouchMath® Standards-Based programs are aligned with current, rigorous state standards — and follows current state ESSA plans that mandate a culture of high expectations for all students — from those who need remedial support to students benefiting from RtI and MTSS interventions to Special Education students with IEPs and students with disabilities. TouchMath® incorporates the Concrete – Representational – Abstract (C-R-A) approach, allowing all students to access a range of tools for building the foundational math skills they must master if they are to succeed in pre-algebra, algebra, geometry and other 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.

# COUNTING AND CARDINALITY: NUMBER SENSE (READINESS)

| Module 1 | Counting | Preparation for Kindergarten: K.CC.1, K.CC.2, K.CC.4, K.CC.5, K.CC.6 |
|---|---|---|

Counting
- Count to 10 verbally
- Count to 10 verbally from any number

One-to-one correspondence
- Point to objects when counting
- Count quantities of manipulatives
- Count quantities of objects in pictures

Numbers 1-10
- Use matching and counting to tell how many
- Match number of fingers shown to objects
- Match TPPs to objects in pictures

Compare sets of objects
- Identify equal and unequal sets
- Verbally identify more and equal (same)
- Make sets of objects equal

Ordinal numbers first–fifth
- Recognize names given orally for ordinal positions
- Verbally identify objects in each ordinal position in pictures

# COUNTING AND CARDINALITY: NUMBER CONCEPTS AND NUMERALS

| Module 2 | TouchPoints | Preparation for Kindergarten: K.CC.2, K.CC.3, K.CC.4, K.CC.5, K.CC.6, K.CC.7 |
|---|---|---|

Represent quantities to nine using manipulatives and TouchPoints
- Associate numeral, quantity, and TouchPoint
- Connect quantity and TouchPoint

Represent quantities to nine using pictures and TouchPoints
- Count objects in pictures
- Associate objects in pictures to Pictorial TouchPoints

Associate pictures, Pictorial TouchPoints, and TouchPoints through nine
- Match foam TouchPoints (blank sides of TPPs) to TPPs to pictures on Activity Mats
- Relate the three representations
- Demonstrate the correct Touching/Counting Pattern for TouchPoints

Compare quantities, numerals, and quantities with numerals
- Identify which set of objects has more
- Select which Pictorial TouchPoint represents more
- Trace, write, and compare numerals

# MEASUREMENT AND DATA: CLASSIFYING (READINESS)

| Module 3 | Classifying | Preparation for Kindergarten: K.CC.5, K.CC.6, K.MD.1, K.MD.2, K.MD.3 |
|---|---|---|

Describe foods
- Color
- Size
- Shape

Sort, classify, and count foods by their descriptions
- Match food replicas, images, and picture cards to objects in pictures
- Match foam TouchPoints (blank sides of TPPs) to objects in pictures
- Move manipulatives from objects in pictures to the table to sort

Represent foods in two categories on paper plates
- Use all representations of food manipulatives
- Move manipulatives from the table top or the pictures to the paper plates
- Count and compare the number in each category

Represent foods in three categories (including a drink)
- Sort the two food categories (maintaining the drink category) in various ways
- Move the manipulatives to the paper plates
- Count and compare the number in each category

# GEOMETRY: SPATIAL CONCEPTS

| Module 4 | 2-D Shapes | Preparation for Kindergarten: K.MD.1, K.MD.2, K.G.1, K.G.2, K.G.3, K.G.4, K.G.5, K.G.6 |
|---|---|---|

Describe 2-D shapes by defining attributes
- Count the number of sides
- Count the number of corners

Identify shapes by name in the environment
- Demonstrate that size is not a defining attribute
- Recognize shapes of different orientations

Use defining and non-defining attributes
- Distinguish a given shape from other shapes
- Match the size of a shape

Sort, classify, and compare shapes
- Compare shapes with different numbers of sides and corners
- Identify shapes with the same number of sides and corners

Compose shapes
- Use the same shape to create other shapes and pictures
- Use different shapes to create new shapes and pictures

Compare 2-D and 3-D shapes
- Recognize that 2-D shapes are flat and seen on paper
- Identify 2-D shapes within 3-D shapes

# GEOMETRY: SPATIAL CONCEPTS CONTINUED

Model shapes in the environment

Build shapes with sticks and clay balls, building blocks

Trace and draw 2-D shapes with templates

Use location words

Understand and identify location words when used in directions

Describe the relative position of objects in pictures

# OPERATIONS AND ALGEBRAIC THINKING: READINESS FOR ADDING AND SUBTRACTING

**Module 4** | **2-D Shapes** | **Preparation for Kindergarten:** K.OA.1, K.OA.2, K.OA.3, K.OA.4

Continue to compare the number of objects in sets

Sequence sets of objects and numerals

Recognize when one set has one more than the other

Add to sets

Add one more to sets

Add objects to one set to make equal sets

**Module 5** | **Graphs** | **Preparation for Kindergarten:** K.OA.1, K.OA.2, K.OA.3, K.OA.4

Uses up to 10 objects

Creates two equal sets

Creates two unequal sets

Uses 12 objects

Finds equal sets of 2-4 objects

Uses all objects to create different sets

Identifies and compares

Counts the number in each set

Verbalizes the ways to make a given number with sets of objects

# MEASUREMENT AND DATA: GRAPHS (READINESS)

| Module 5 | Graphs | Preparation for Kindergarten: K.MD.1, K.MD.2, K.MD.3 |
|---|---|---|

**Sort, classify, and record results on simple graphs**
- Match TPPs to pictures of objects
- Move TPPs to the columns on the graph
- Count the number in each column
- Compare the quantities

**Associate numerals with quantities**
- Match TouchNumerals to the quantity in each column
- Compare the numeral of each quantity
- Identify a numeral for the column
- Match the number of TPPs to the numeral

**Graph TPPs**
- Use 2 x 2 graph templates
- Use 2 x 3 graph templates
- Use 3 x 3 graph templates
- Use 3 x 4 graph templates

**Create sets of TPPs to graph**
- Make sets of 1, 2, or 3 TPPs
- Place them on the graph
- Compare each pair of TPPs
- Repeat using TouchNumerals instead of TouchPoints

**Transition from TPPs**
- Match TPPs to foam TouchPoints
- Match TPPs to picture cards
- Match foam TouchPoints to same-color TouchShapes
- Match foam TouchPoints to same shape (different colors)

**Identify and extend patterns**
- Use objects, then pictures, to identify the pattern
- Identify and add one more to ABAB patterns with pictures
- Identify and add one more to AABAAB patterns with pictures
- Create patterns using 2 different objects

# COUNTING AND CARDINALITY

## Represent, Associate, and Compare Numbers

| | | |
|---|---|---|
| **Unit 1** | Numbers 0-5 | **K.CC. 3** |
| **Unit 2** | Numbers 6-9 | |
| **Unit 3** | Numbers 10-20 | |
| **Units 1-3** | Represent and associate numbers with manipulatives | |

Count objects in groups

Associate groups of objects with numbers

Use matching and counting strategies

Sequence numbers — **K.CC.1**

Write numerals and associate with quantities — **K.CC. 3, 4, 5**

Trace and write numerals

Answer "how many"

Match numerals to quantities

Understand the relationship of zero to quantities

Represent a given numeral with a quantity

Represent numbers with pictures — **K.CC.3**

Connect pictures and objects

Connect pictures and Pictorial TouchPoints

Connect Pictorial TouchPoints and TouchPoints

Represent quantities in multiple ways

Apply counting to quantities

Demonstrate the correct Touching/Counting Patterns

Use TouchPoints to reinforce counting for numbers 1-9

Match numerals to quantities

Compare numbers with objects, pictures, and TouchPoints using matching and counting strategies — **K.CC.6, 7**

Identify more

Identify less

Identify equal

Use mixed representations

Compare numbers 1-10 as written numerals

Recognize and relate multiple representations of quantities

Use comparison symbols

**Unit 3** — Count to 100 orally — **K.CC.1**

Understand that zero is not a counting number

Count to 10

Count to 11 to 20

Count 21 to 30

Count 31 to 40

Count 41 to 50

Count 51 to 60

Count 61 to 70

Count 71 to 80

## COUNTING AND CARDINALITY CONTINUED

Count 81 to 90

Count 91 to 100

Count to 100 by tens

Count to 50

Count 60 to 100

Count and fill in missing numbers

Name numbers before and after given numbers

Identify numbers out of sequence

Count forward from a given number                                    **K.CC.2**

## OPERATIONS AND ALGEBRAIC THINKING

**Add and Subtract Numbers**

**Unit 1** Numbers 0-5                                              **K.OA. 1, 2, 5**

**Unit 2** Numbers 6-9

**Unit 3** Numbers 10-20

**Units 1-3** Represent addition and subtraction with manipulatives

Demonstrate joining parts to make a whole and taking away a part from the whole

Apply counting forward and counting backward

Use fingers to represent the equation

Show equations on number lines and with number sentences

Act out equations

Make sounds and drawings

Verbally explain the operations

Create and tell word problems

Relate  counting forward to addition and counting backward to subtraction

Solve for unknowns

Represent the operations with pictures and TouchPoints

Relate the operations using  number families

Use TouchPoints as strategy

Represent the equations in multiple ways

Demonstrate the operations with visual cues

Use counting on and counting backward

Recognize and apply understanding of operations signs

Make drawings and create word problems

Compose and decompose numbers using objects and pictures

**Unit 1** Find pairs of numbers that equal numbers through 5                    **K.OA.3, 4, 5**

**Unit 2** Find pairs of numbers that equal numbers 6 through 9

**Unit 3** Find pairs of numbers that equal 10

**Units 1-3** Fluently add and subtract within 5

Use TouchPoints

Use strategies

# OPERATIONS AND ALGEBRAIC THINKING CONTINUED

Relate the operations to everyday activities

Use examples to tell a story with other experiences in the day

Identify and explain examples outside of school

# NUMBER AND OPERATIONS IN BASE TEN

**Compose and decompose numbers**

**Unit 3** Numbers 11-19 **K.NBT.1**

Show bundles of 10 and some further ones

Use objects (counters, base ten blocks, beads on a string, etc.)

Use pictures (of the objects and base ten models)

Use drawings

Use place value models, e.g. ten frames and place value charts

Use multiple representations of the numbers

Associate the various representations

Record each representation as one 10 + ones

Understand two-digit numbers

Explain that 10 ones equals one ten

Identify the place of the digits in numbers

Recognize 20 at two sets of 10 + zero ones

# MEASUREMENT AND DATA

**Describe, compare, and classify measurable attributes**

**Unit 4** Describe , compare, and classify objects

Describe measurable attributes of objects using pictures **K.MD.1**

Describe lengths of objects using nonstandard units

Describe weights of objects using "sink" and "float"

Describe length and weight of a single object

Compare measurable attributes of objects using pictures **K.MD.2**

Compare lengths of objects

Compare weights of objects

Compare length and weight of an object to another object

Sort, count, and classify objects by measurable attributes **K.MD.3**

Sort, count, and classify by length

Sort, count, and classify by weight

Classify by length and weight

Graph the results of classifying

# GEOMETRY

### Describe, identify, compare, and compose shapes

**Unit 4** 2-D shapes

Circles

Triangles

Squares

Rectangles

Rhombuses (diamonds)

Trapezoids

| | |
|---|---|
| Describe shapes by kind of lines and number of sides and corners | **K.G.2, 4** |
| Distinguish each shape from other shapes in pictures | |
| Match each shape in pictures regardless of size, color, or orientation | |
| Name each shape by its defining attributes | |
| Compare shapes | |
| Define similarities and differences | **K.G. 4** |
| Compose larger shapes from smaller shapes using manipulatives | **K.G.5, 6** |
| Compose larger shapes from smaller shapes using cutting and pasting | |

3-D shapes

Spheres

Cubes

Cones

Cylinders

| | |
|---|---|
| Describe shapes using 3-D solid and paper models | **K.G.2, 4** |
| Distinguish each shape from other shapes in pictures | |
| Match each shape by size and orientation in pictures | |
| Match each shape in pictures regardless of size, color, or orientation | |
| Describe similarities and differences of 3-D shapes | |
| Build 3-D shapes from readily-available materials | **K.G.5. 6** |
| Describe similarities and differences of 2-D and 3-D shapes | **K.G.3** |

Shapes in the Environment

| | |
|---|---|
| Describe objects in the environment using names of shapes | **K.G.1** |
| Correctly name shapes regardless of size or orientation | |
| Describe the relative position of the objects | |

Inside/outside

Middle

Over/under

Above/below

Beside/next to

# FINANCIAL LITERACY

**Unit 4**  Identify U.S. coins (pennies, nickels, dimes, quarters)

Identify ways to earn income

Differentiate between income and gifts

List simple skills for jobs

Distinguish between wants and needs

# OPERATIONS AND ALGEBRAIC THINKING

| Add Using Manipulatives, Pictures, and TouchPoints | 1.OA.1, 5–8 |
|---|---|
| **Unit 1** Show addition as putting together groups of objects | |
| Count groups of objects to get the sum | |
| Use drawings to explain addition | |
| Demonstrate that addition is made up of parts to make a whole | |
| Represent problems in multiple ways | |
| Count the quantities and sum using TouchPoints | |
| Relate addition to counting using TouchPoints | |
| Tell word problems using pictures | |
| Read word problems using rebus and controlled vocabulary | |
| Write number sentences for word problems | |
| Write word problems for number sentences | |
| Use equations | |
| Match expressions to sums | |
| Identify true or false and select correct answers | |
| Sums within 10 | |
|    Apply strategies including TouchPoints | |
|    Master adding fluently within 10 | |
|    Use boxes for unknowns | |
|    Compare sums using >, =, or < | |
|    Build 10 using pairs of addends | **1.OA.6** |
| **Units 2-3** Sums within 20 | **1.OA.1, 3, 5–8** |
|    Apply TouchPoints as tactile or visual cues | |
|    Represent a number of objects with dots | |
|    Draw dots for missing addends to count on | |
|    Use the commutative property | |
|    Recognize and apply patterns in addition (e.g., +3 to a sequence of numbers) | |
|    Compare sums | |
|    Compose 10 using the associative property | **1.OA.3, 6** |
|    Add 3–5 addends using TouchPoints | **1.OA.2** |
|    Use doubles to build fluency with addition | **1.OA.6** |
|    Apply understanding of fact families | |
|    Decompose numbers to make easier sums | |
| Subtract Using Manipulatives, Pictures, and TouchPoints | 1.OA.1, 4–8 |
| **Unit 1** Show subtraction as taking away a part from a whole | |
| Count groups of objects to find the difference | |
| Use drawings to explain subtraction | |
| Represent problems in multiple ways | |
| Demonstrate that subtraction begins with the whole | |
| Use counting backward as a subtraction strategy | |
| Use TouchPoints to count and find the difference | |
| Relate subtraction to counting using TouchPoints | |

# OPERATIONS AND ALGEBRAIC THINKING CONTINUED

Say the minuend and use TouchPoints to subtract the subtrahend

Tell word problems using pictures

Read word problems using rebus and controlled vocabulary — **1.OA.1, 4–8**

Write number sentences for word problems

Write word problems for number sentences

Use equations

Relate addition and subtraction

Match expressions to differences

Identify true or false and select correct answers

Subtract within 10 as minuend

    Apply strategies including TouchPoints

    Master subtracting fluently within 10

    Use boxes for unknowns

    Use blacking out to show objects being taken away

    Use crossing out to show objects being taken away

    Compare differences using <, =, or >

**Unit 2** Subtract within 20 as the minuend

    Apply TouchPoints as tactile or visual cues

    Use fact families (e.g., 11 - 7 = 4 and 11 - 4 = 7)

    Recognize and apply patterns in subtraction (e.g., - 3 from a sequence of numbers)

    Compare and order differences

## Add and Subtract Using Pictures and TouchPoints

**Units 1-2** Recognize and write operations signs (+ and -) — **1.OA.1, 4–8**

Identify the correct operation and operation sign

Understand equations and the equal (=) sign

Apply operations in vertical and horizontal formats

Identify and say the larger addened and minuend

Use TouchPoints on the smaller addend and subtrahend to count and find sums and differences

# NUMBER AND OPERATIONS IN BASE TEN

## Count, Read, and Write to 120

**Unit 1** Sequence numbers (read, trace, write) — **1.NBT.1**

Count and fill in missing numbers

Name numbers after, between, and before a given number(s)

Count to 10

Count to 20

Count 20–30

Count 20–40

Count 30–50

Count 50–70

Count 70–80

## NUMBER AND OPERATIONS IN BASE TEN CONTINUED

Count 70–90

Count 70–100

Count 100–110

Count 110–120

Count 1–120

Sequence from any number

### Represent Numbers with Pictures and TouchPoints

**Unit 2** | Build numbers 10–20 | **1.NBT.2**

Use bundles of straws, beads on a string, and connecting cubes

Demonstrate bundles of ten and additional ones

Apply pictorial representations to place value charts

Associate models, pictures, TouchPoints, place value charts, and numerals

Match different representations

Transfer pictures to numerals (pictorial TouchPoints)

Relate pictorial TouchPoints to TouchPoints

Use place value charts and numerals

Compare two-digit numbers | **1.NBT.3**

Use symbols <, =, or >

Demonstrate comparisons using models and pictures

Use place value charts and numerals

Compare sums and differences

### Add Using Place Value and Properties of Operations

**Unit 3** | Use models, drawings, charts, and TouchPoints | **1.NBT.4**

Match models to numerals

Use TouchPoints and commutative property

Apply patterns in addition

Find missing addends

Identify related addition and subtraction facts

Sums within 100

Add a one-digit number to a two-digit number (no regrouping)

Add a two-digit number to a two-digit number (no regrouping)

Recognize and apply base 10 blocks to addition of two-digit numbers

Add 3 two-digit addends within 100 (no regrouping) | **1.NBT.4+**

Use place value charts, visual cues, and TouchPoints to add ones to ones and tens to tens

Match expressions to sums using TouchPoints

Regroup ones to compose a ten using models and pictures

Add multiples of 10 to one- and two-digit numbers | **1.NBT.4, 5**

Relate the addition fact with a multiple of 10 to the subtraction fact with a multiple of 10

Compare and order sums | **1.NBT.3**

# NUMBER AND OPERATIONS IN BASE TEN CONTINUED

**Subtract Using Place Value and Properties of Operations**

| | |
|---|---|
| **Unit 3** Use models, drawings, number lines, charts, and TouchPoints | **1.NBT.4+** |
| Match models to numerals | |
| Apply understanding of TouchPoints | |
| Apply patterns in subtraction | |
| Identify and solve for unknowns | |
| Match expresssions to differences | |
| Identify related subtraction and addition facts | |
| Differences within 100 | |
|     Use visual cues in subtracting ones from ones and tens from tens | |
|     Subtract two-digit numbers using models, place value charts, and crossing out | |
|     Recognize and apply base 10 blocks to subtraction of two-digit numbers | |
|     Subtract two-digit numbers using place value charts, TouchPoints, and visual cues | |
|     Relate addition and subtraction facts (number families) | **1.NBT.4** |
|     Decompose a ten to regroup using models and pictures | |
| Subtract multiples of 10 from two-digit numbers | **1.NBT.5, 6** |
| Relate the subtraction fact with a multiple of 10 to the addition fact with a multiple of 10 | |
| Compare and order differences | **1.NBT.3** |

# MEASUREMENT AND DATA

**Measure Length**

| | |
|---|---|
| **Unit 4** Measure line lengths using paperclips | **1.MD.1, 2** |
| Compare and order line lengths | |
| Measure physical objects using paperclips and other units (e.g., lengths of string) | |
| Measure pictorial objects using various tools | |
| Demonstrate end-to-end measurement with no gaps and no overlaps | |
| Demonstrate that the number of same-length units is the measurement of length of an object | |
| Cut out and use various length units to measure objects | |
| Use various length units to measure pictorial objects | |
| Compare and order lengths of objects and pictures | |

**Tell Time**

| | |
|---|---|
| Identify hour and minute hand on an analog clock | **1.MD.3** |
| Identify each hour on an analog clock by tracing the hands | |
| Fill in missing hours on an analog clock | |
| Match digital time to analog time | |
| Recognize five-minute intervals on an analog clock | |
| Skip count by fives to 60 | |
| Identify each five-minute interval between 12:00 and 1:00 | |
| Match analog time to digital time | |
| Say and write each half-hour for a 12-hour period | |
| Draw hands for each half-hour on an analog clock | |

## MEASUREMENT AND DATA CONTINUED

Match half-hours on an analog clock to a digital clock

Write the hours on an analog clock and identify digital time

Write the digital time for analog half-hours

| Represent and Interpret Data | 1.MD.4 |
| --- | --- |

Sort and classify pictures by cutting and pasting on 2 x 5 graphs

Sort and classify pictures by cutting and pasting on graphs up to 3 x 6

Record data on vertical and horizontal graphs

Ask and answer questions about data on pictorial graphs

Ask and answer questions about data on bar graphs

Identify number of data points on graphs

Compare data on graphs

## GEOMETRY

| 2-D Shapes: Define 2-D Shapes  *Circle, Triangle, Square, Rectangle, Rhombus, Trapezoid, Hexagon* | 1.G.1 |
| --- | --- |

**Unit 4** Identify parallel, intersecting, and perpendicular lines

Demonstrate that lines are combined to make shapes

Distinguish between open and closed shapes

Learn that the number of edges and corners define the shape

Define each shape by the number of edges and corners

Read and write the names of shapes

Match the names of shapes to their defining attributes

Associate names with shapes

Demonstrate that color, size, and orientation do not define the shape

Match shapes of different sizes and orientations

Compare and contrast shapes based on their defining attributes

Draw shapes based on their defining attributes

| Compose 2-D Shapes | |
| --- | --- |

| Cut and paste parts of shapes to make a composite shape using a model | 1.G.2 |
| --- | --- |

Build a composite shape using pieces in multiple ways

Relate building shapes using parts to completing jigsaw puzzles

| Compose New Shapes | 1.G.2 |
| --- | --- |

Combine different sizes of a given shape to make a new shape

Combine different sizes of different shapes to make a new shape

Identify common shapes in the environment that are made up of various shapes

| 3-D Shapes: Define 3-D Shapes  *Cone, Cylinder, Cube, 3-D Rectangle (Right Rectangular Prism)* | 1.G.1 |
| --- | --- |

Manipulate 3-D shape models

Learn that the number of faces, edges, and corners define the shape

Apply understanding of the definitions of 2-D shapes to 3-D shapes

Define each shape by the number of faces, edges, and corners

Read and write names of shapes

Match the names of shapes to their defining attributes

# GEOMETRY CONTINUED

Associate names with shapes

Demonstrate that color, size, and orientation do not define the shape

Match shapes of different sizes and orientations

Compare and contrast shapes based on their defining attributes

## Compose 3-D Shapes

Compose 3-D shapes out of clay **1.G.2**

Cut and paste parts of shapes to simulate making actual 3-D shapes

Cut and paste parts of various 3-D shapes to match to the shapes

## Compose New Shapes **1.G.1**

Combine different sizes and orientations of a given shape to simulate a picture in the environment

Combine different shapes to make a new shape

Identify common shapes in the environment that are made up of various shapes

## Partition Circles and Rectangles into Fractional Parts **1.G.3**

Color shaded part, read and trace fractions for halves and fourths in circles and rectangles

Cut and paste shaded, labeled share or part on the whole

Color shaded parts and write fractions for halves and fourths in circles and rectangles

Match shaded parts of circles and rectangles to halves and fourths

Explain that the shares or parts must be the same size

Color/label/cut/paste halves & fourths in triangles/squares/rhombuses/hexagons as appropriate to the fraction & shape **1.G.3+**

Color, label, cut, and paste thirds and fifths in circles and rectangles

Color, label, cut, and paste thirds and fifths in other shapes

Color, label, cut, and paste sixths in rectangles and hexagons

Sequence fractional parts (of the same size) to see comparisons

Order fractional parts (of different sizes) of a given figure

Compare fractional parts (of different sizes) of a given figure

Match shaded parts of circles to halves through sixths

Read and write fractions for halves through sixths

Demonstrate that the greater the number of parts, the smaller the part **1.G.3**

Associate shaded parts, fractions, and common references (e.g., one quarter)

# OPERATIONS AND ALGEBRAIC THINKING

| Add and Subtract Using Manipulatives, Pictures, and TouchPoints | 2.OA.1, 2 |
|---|---|

**Unit 1**
- Show addition as putting together groups of objects
- Show subtraction as taking away a part from a whole
- Count groups of objects to get the sum or difference
- Use drawings to explain addition and subtraction
- Identify parts and wholes
- Represent problems in multiple ways
- Count quantities and use TouchPoints to find sums and differences
- Use TouchPoints to relate addition and subtraction to counting
- Tell word problems using pictures
- Read one-step word problems
- Write number sentences for word problems
- Write word problems for number sentences
- Use equations
- Compare sums and differences using <, =, or >
- Apply properties of operations
- Apply the relationship between addition and subtraction
- Match expressions to sums and differences
- Identify true or false
- Select correct answers from two to four choices
- Find sums and differences within 13
  - Apply strategies including TouchPoints
  - Add and subtract fluently within 10
  - Use ten frames to build tens and additional ones
  - Count on from the larger addend and count backward from the minuend
  - Cross out objects in pictures to demonstrate subtraction
  - Use boxes for unknowns

| Add and Subtract Using Pictures and TouchPoints | 2.OA.1, 2 |
|---|---|

- Identify the correct operation and operation sign
- Apply operations in vertical and horizontal formats
- Identify and say the larger addend and minuend
- Use TouchPoints on the smaller addend and the subtrahend to count and find sums and differences
- Compare sums and differences using <, =, or >
- Find sums and differences within 20
  - Apply understanding of TouchPoints as tactile or visual cues
  - Extend adding and subtracting fluently to within 20
  - Recognize and apply patterns in addition and subtraction (e.g., +4 or –4 to a sequence of numbers)
  - Use doubles and doubles +/– 1 to build fluency
  - Identify multiple addends for a given whole
  - Compose 10 using the associative property
  - Decompose numbers to make easier sums
  - Apply understanding of number families

# OPERATIONS AND ALGEBRAIC THINKING CONTINUED

| Add and Subtract Using TouchPoints and Visual Cues | 2.OA.1, 2 |
|---|---|

**Units 1-2**
- Use place value and indicators of where to begin
- Compute with a one-digit number and a two-digit number
- Solve problems with two two-digit numbers
- Read and solve equations with one- and two-digit numbers
- Compare sums and differences using <, =, or >
- Find sums and differences within 50 (no regrouping)

| 2.NBT.6 |
|---|

- Add up to four addends
- Select the operation and solve the problem
- Solve with unknowns in various positions
- Find sums and differences within 100
- Skills listed under Number & Operations in Base Ten

| Multiply Using Equal Groups of Objects | 2.OA.3, 4 |
|---|---|

**Unit 3**
- Sort concrete objects into equal groups
  - Correlate the objects to TouchPoints on the numbers
  - Relate the objects to pictures
  - Use the pictures as TouchPoints on the numbers
  - Show the problems as repeated addition of the same number
  - Skip count by 2, 3, 4, and 5
  - Show multiplication as groups of 2, 3, 4, and 5
  - Apply understanding in solving word problems
  - Draw pictures to represent word problems
- Transfer learning from objects and pictures to arrays of dots
  - Transfer from pictorial TouchPoints to TouchPoints
  - Ring equal groups of dots in arrays
- Transition to skip counting without TouchPoints
  - Tell word problems from pictures
  - Find missing numbers in sequences
  - Relate skip counting to equal groups of objects
  - Draw pictures to represent word problems
  - Solve word problems
- Match groups of pictures of objects to even (or odd) numbers
  - Identify numbers 1–40 as even or odd
  - Find pairs of two equal addends for numbers 11–25 using pictures
  - Write the equation as the sum of the two equal addends
  - Write the problem using x as the multiplication symbol
  - Demonstrate the commutative property of multiplication
  - Multiply by 2, 3, 4, and 5 (up to 5 x 5) using pictures, equal addends, arrays of dots, and multiplication equations
  - Draw arrays of dots to represent problems
  - Use pictures to solve word problems
  - Use drawings and equations to solve word problems

# NUMBER AND OPERATIONS IN BASE TEN

| Understand Place Value Using Manipulatives, Pictures, Charts, and Numbers | 2.NBT.1, 4 |
|---|---|

**Unit 2** Represent hundreds, tens, and ones using base ten blocks

    Demonstrate that 10 is a bundle of 10 ones, 100 is a bundle of 10 tens, and 1,000 is a bundle of 10 hundreds

    Relate pictures of base ten blocks to place value charts

    Represent each multiple of 100 using models, pictures, and charts

Find mystery numbers based on place value

Represent numbers up to 1,200 using concrete and pictorial models

Represent 100–1,200 using expanded place value

    Represent numbers with unknowns in place value charts

    Match compact numerals to identified place value

Use various place value forms

Compare numbers using place value charts and expanded forms

Find unknowns in compact numerals, place value charts, and expanded forms

Identify compact numbers from written word place values

Find mystery numbers based on written clues

Match representations of numbers using words, mystery numbers, compact numerals and place value forms

| Count, Read, and Write Numbers to 1,200 | 2.NBT.2, 3 |
|---|---|

Sequence count and read numbers for each hundred using a hundred chart

    Sequence count by 5 and 10 within hundreds

    Practice odd and even numbers within each hundred

Find mystery numbers based on understanding the sequence of numbers

    Identify a number that comes immediately after a given number

    Identify a number that comes between two numbers

    Identify a number that comes immediately before a given number

Sequence numbers in a variety of ways

Locate numbers on open number lines

Name numbers by their location on open number lines

Compare numbers using open number lines, other models, and symbols

Find unknowns based on comparisons and place value

Apply understanding of sequence and place value in word problems

Read number words and write numerals in sequence

    Skip count and write numbers in sequence by 5 to 100

    Use number words in flow charts to skip count by 10 to 100

    Read, write, and skip count by 100 to 1,200

    Use understanding of skip counting by 5, 10, and 100 to find unknown numbers

Write base ten numerals in place value charts and as number names

    Match base ten numerals and number names

    Write numbers from expanded forms

Relate and write all forms of numbers: compact numerals, expanded forms, and number names

Apply understanding in writing numerals from number names in flow charts

Integrate writing number names into finding missing numbers in sequence

# NUMBER AND OPERATIONS IN BASE TEN CONTINUED

| Add and Subtract with Models and Visual Cues | 2.NBT.4–7, 9 |
|---|---|

**Units 1-2**

Use base ten blocks and ten frames to demonstrate regrouping

Use place value and indicators of where to begin

Associate models, pictures, place value charts, and numerals

Use TouchPoints as tactile or visual cues

Apply understanding of operations with one-digit and two-digit numbers

Extend learning to computing with two-digit numbers

Read and solve two-step word problems using diagrams, number sentences, and strategies

Compare sums and differences

Find sums and differences within 50 (with regrouping)

- Use visual cues to support regrouping (boxes for addition and lines for subtraction of the tens)
- Add up to three addends
- Solve with unknowns in various positions
- Match models, pictures, place value charts, and numerals with/without TouchPoints to represent problems
- Use in/out tables
- Represent problems with drawings
- Select operations and solve problems
- Demonstrate problems with expanded place value
- Apply understanding of the relationship of addition and subtraction by using number families
- Match expressions to sums and differences
- Use the associative property to provide multiple solutions
- Provide written explanations or drawings of problems
- Extend application of finding 10 as a strategy
- Apply strategies in solving word problems

Find sums and differences with 100 (with and without regrouping)

- Determine if regrouping is needed
- Use if/then statements
- Use a hundred chart to demonstrate problems and their answers
- Work equations in both vertical and horizontal formats
- Confirm answers by matching
- Add up to four addends
- Perform operations without TouchPoints
- Solve increasingly complex word problems
- Demonstrate fluency using strategies

| Add and Subtract with Strategies | 2.NBT.8 |
|---|---|

**Unit 2**

Find sums and differences using multiples of 10

- Add and subtract multiples of 10 with multiples of 100
- Use the relationship of addition and subtraction
- Find unknowns in all positions
- Apply understanding of if/then statements
- Solve word problems
- Add and subtract multiples of 10 with multiples of 100 and multiples of 10 (e.g., 250 + 40)

# NUMBER AND OPERATIONS IN BASE TEN CONTINUED

Add and subtract multiples of 10 with a three-digit number (e.g., 957 – 50)

Find sums and differences using multiples of 100

Add and subtract multiples of 100 with multiples of 100

Add and subtract multiples of 100 with multiples of 100 and multiples of 10

Add and subtract multiples of 100 with a three-digit number

Find and apply patterns in sequences of numbers

Apply understanding in flow charts

Compare sums and differences

Use in/out tables

Match sums and differences

Demonstrate adding and subtracting multiples of 10 and multiples of 100 mentally

Use place value to find easier sums and differences

Use number families

Use properties of operations

Use multiples of 10 and 10 +/– 1

Select expressions that do not make a given sum or difference

Use problem solving strategies

Draw a picture

Find a pattern

Make a table

Find unnecessary information

Demonstrate adding and subtracting fluently within 100

| Add and Subtract Three– and Four–Digit Numbers (within 1,200) | 2.NBT.7 |
|---|---|

**Unit 3** Extend understanding of regrouping with models

Apply using visual cues for finding sums and differences

Use place value charts and arrows for indicators of where to begin

Use boxes for regrouping in addition and lines for regrouping in subtraction

Order sums and differences from least to greatest and greatest to least

Compare sums and differences

Apply understanding in word problems using problem solving strategies

Transfer learning to computing with no visual cues

Solve for unknowns in all positions

Use multiple addends

Use new problem solving strategies

Guess and check

Write a number sentence

Use logic

Estimate

Apply multiple problem solving strategies to solve word problems

Select multiple expressions for a given sum or difference

Demonstrate using mixed addition and subtraction in flow charts

# NUMBER AND OPERATIONS IN BASE TEN CONTINUED

- Use new problem solving strategies
  - Work backward
  - Choose an operation (calculation)
- Apply problem solving strategies in complex word problems
- Explain why addition and subtraction strategies work
- Demonstrate understanding of adding and subtracting within 1,200

# MEASUREMENT AND DATA

| Reason with Length | 2.MD.1, 2 |
|---|---|

**Unit 4** Learn about the ruler—standard (customary) measurement
- Find that a ruler equals 12 inches or one foot
- Demonstrate how to measure with and read the measurement using a ruler
- Measure line lengths up to 12 inches to the nearest number of whole-unit lengths
- Identify objects that can be measured with a ruler (up to 12 inches)
- Use the customary abbreviation for inches and feet
- Learn about the yardstick
  - Find that a yardstick equals three feet
  - Demonstrate how to measure with and read the measurement using a yardstick to the nearest number of whole-feet lengths
  - Identify objects that can be measured with a yardstick
  - Use the customary abbreviation for yards
- Learn about the tape measure
  - Find that the tape measure shows markings for inches and feet
  - Demonstrate how to measure with and read the measurement using a tape measure for lengths greater than three feet
  - Identify objects that can be measured with a tape measure
- Identify the tool that should probably be used to measure an object
  - Measure and record the measurement
  - Understand that the greater the length of an object, the larger the tool that should be used
  - Explain that measuring the length of an object with a tool that is too large can be cumbersome
  - Select the appropriate tool and measure the lengths of common objects
  - Measure objects twice with different tools
  - Demonstrate that the larger the unit (tool) used, the fewer the units in the measurement
  - Show that the smaller the unit used, the more accurate the measurement

| 2.MD.4 |
|---|

- Compare lengths of two or more objects using <, =, or >

| 2.MD.3 |
|---|

- Estimate standard length, comparing inches and feet
- Estimate standard length, comparing inches to inches and feet to feet
- Find the difference in length of two lines
- Learn about the metric ruler (metric measurement)
  - Find that a metric ruler equals ~30 centimeters
  - Measure line lengths up to 30 centimeters to the nearest number of whole-unit lengths

# MEASUREMENT AND DATA CONTINUED

Use the customary abbreviation for centimeters

Identify objects that can be measured with a metric ruler

Learn about the meter stick

Find that a meter stick equals 100 centimeters

Demonstrate how to measure with and read the measurement using a meter stick to the nearest number of whole-meter lengths

Demonstrate how to read the measurement using a meter stick for centimeters

Identify objects that can be measured with a meter stick

Use the customary abbreviation for meters

Identify the tool that should probably be used to measure an object

Measure and record the measurement

Understand that the greater the length of an object, the larger the tool that should be used

Explain that measuring the length of an object with a tool that is too large can be cumbersome

Select the appropriate tool and measure the lengths of common objects

Measure objects twice with different tools

Demonstrate that the larger the unit (tool) used, the fewer the units in the measurement

Show that the smaller the unit used, the more accurate the measurement

## 2.MD.4

Compare lengths of two or more objects using <, =, or >

## 2.MD.3

Estimate metric length, comparing centimeters and meters

Estimate metric length, comparing centimeters to centimeters and meters to meters

Find the difference in the length of two lines

## 2.MD.5

Relate addition and subtraction to length

Use the drawing of a ruler with a centimeter markings

Measure line lengths

Cut out line lengths and lay them end-to-end to add or with the shorter one above to subtract

Record the sums and differences of line lengths in equations

Measure the line lengths of the sides of shapes (readiness for perimeter)

Find the sum and difference of the line lengths in shapes

Apply understanding in word problems with diagrams and pictures

Solve for unknowns in word problems

Add and subtract differences in diagrams

Relate distances to lengths

Apply understanding in word problems with diagrams and pictures including unknowns

Write equations to solve problems with addition and subtraction of length/distance

## 2.MD.6

Represent line lengths on number line diagrams

Demonstrate finding sums and differences of line lengths on number line diagrams

## MEASUREMENT AND DATA CONTINUED

| Tell Time | 2.MD.7 |
|---|---|

Understand a 24-hour day

Trace hands on analog clocks and corresponding times on digital clocks

Tell time

    Tell time to the hour

    Tell time to the half hour

    Skip count by 5 to 60 using star indicators on analog clocks

    Identify each five-minute interval between 11:30 am and 12:30 pm

    Tell time to the nearest five minutes

    Tell time to the nearest one minute

Find elapsed time

    Identify time one to two hours later

    Identify time one to two hours earlier

| Learn about Money | 2.MD.8 |
|---|---|

Identify coins

    Recognize the coin front and back

    Read and write the coin names

    Demonstrate value of coins using ¢ and $

Identify bills

    Recognize ones (singles), fives, tens, twenties, and hundreds

    Read and write the bill names

    Demonstrate the value of the bills

    Know the purpose of the decimal point in the representation with $

Count the value of multiple coins and multiple bills using skip counting

    Count the value of same-type coins

    Count the value of same-type bills

Compare values of multiple same-type coins (e.g., 8 nickels compared to 8 dimes)

Skip count by 25 to count the value of quarters

Find the value of one dollar using same-type coins

Match multiple same-type coins to their values using $

    Count the values of mixed coins

Count the values with the coin values arranged from greatest to least

Represent values using ¢ and $

Count values with the coin values arranged randomly

Identify the coins for given values

Use a problem solving strategy to find the value using the fewest number of coins

Find one dollar using coins of multiple values

Match the values of mixed coins and dollars

    Compare the values of mixed coins and dollars

    Apply understanding in word problems

    Use patterns and/or missing addends and/or subtraction to solve word problems

Find the value of individual bills using same-type and multiple-types of coins and bills

## MEASUREMENT AND DATA CONTINUED

### Represent and Interpret Data, 2.MD.9–10

Create and interpret pictorial graphs

Create graphs from given data

Record data on both vertical and horizontal graphs

Create graphs with up to four categories and 10 data points in each category

Compare data from the graphs

Construct and interpret bar graphs

Create graphs from given data

Select answers from four choices about the graphs

Select the graph that represents given data

Generate measurement data using the lengths of objects

Use non-standard, customary, and metric measurements

Record the data in a table

Order the measurements from least to greatest

Transfer the data to line plots

Interpret the data in the line plots

Find differences in line lengths represented in the line plots

Measure objects with a picture of a centimeter ruler (up to 15 cm)

Record lengths as whole-number units

Select answers from four choices to questions about the line plots

## GEOMETRY

### Reason with Shapes, 2.MD.1–3

**Unit 4** Recognize and draw shapes

Identify the number and kind of sides and angles (e.g., equal, different)

Trace and write the name

Select a shape in different orientations and sizes from other shapes

Connect dots using a ruler to draw the shapes

Draw shapes with no guides

Distinguish between shapes with the same number of sides and angles using defining attributes

Shapes with three sides and three angles—triangles (equilateral, right, isosceles, and irregular)

Shapes with four sides and four angles—squares, rhombuses, rectangles, parallelograms, and trapezoids

Shapes with six sides and six angles—hexagons

3-D shapes—cubes

Match shapes, shape names, and definitions

Partition rectangles into same-size squares (readiness for area)

Follow dotted lines, then gray lines, then dots to be connected in portioning the rectangles

Use vertical and horizontal orientations

Two, four, and six same-size squares

Eight and nine same-size squares

Ten and twelve same-size squares

## GEOMETRY CONTINUED

Identify true or false for statements about the number of squares in given numbers of rows and columns

Partition rectangles and circles into two, three, and four equal shares (readiness for fractions)

Shade the identified equal share, trace the fraction word name, and associate the fraction

Connect dots using a ruler to divide the shapes into equal parts

Identify the fraction for the shaded part

Match partitioned circles and rectangles to the fraction and the fraction word names (e.g., one third, a third of, three thirds, one whole)

Draw the identified fractional part of rectangles

Recognize that equal shares of identical wholes need not have the same shape

## NOTES

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**THE ALPHABET OF MATHEMATICS**

Since 1975

## UPPER GRADES PROGRAM
### BASIC SCOPE & SEQUENCE

**10** UNITS

**2,000** ACTIVITY SHEETS

**60** TOPICS

# Table of Contents

# Program Overview and Introduction

## Program Overview

TouchMath provides this Upper Grades Program Overview and Scope and Sequence to present the story of the TouchMath approach to math standards for students with learning disabilities. The standards apply broadly to individual states, Common Core State Standards, and various versions of standards from the National Council of Teachers of Mathematics. The TouchMath Upper Grades Program, Sixth Edition, provides support for individual learning by presenting information in multiple ways and by ensuring students have the appropriate amount of meaningful repetition to master the skills. Both the content and the activities are scaffolded with small steps to ensure students understand and apply relationships to master skills. The focus is simple: Learn and apply strategies to solve problems. The use of TouchPoints as kinesthetic and/or visual cues, properties of operations, and relationships among number representations are each presented to find the match for each student. At the core of the Program is the philosophy of TouchMath: Use what comes naturally to learners to teach the skills.

## Basic Scope and Sequence

This presentation includes the topics, standards, and skills that encompass the Program. The graphic representation mirrors and identifies select sub-skills within the comprehensive scope and sequence. To access the comprehensive version online, please visit www.TouchMath.com/SS.

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## Basic Scope and Sequence

| | Basic Grade Levels | | | | | |
|---|:---:|:---:|:---:|:---:|:---:|:---:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Number Sense (Counting and Cardinality)** | ✔ | ✔ | | | | |
| Unit 1 — Count and read numbers to 20 | ✔ | | | | | |
| Unit 2 — Count and skip count numbers to 1,000 | | ✔ | | | | |
| Represent and compare numbers to 1,000 | | ✔ | | | | |
| **Addition and Subtraction within 20** | ✔ | ✔ | | | | |
| Unit 1 — Add using TouchPoints, cues, and strategies | ✔ | | | | | |
| Add using place value and properties of operations | ✔ | | | | | |
| Subtract using TouchPoints, cues, and strategies | ✔ | | | | | |
| Unit 1-2 — Subtract using place value and properties of operations | ✔ | ✔ | | | | |
| Add and subtract fluently | | ✔ | | | | |
| Solve one-step word problems | ✔ | ✔ | | | | |
| **Addition and Subtraction within 1,000** | | ✔ | ✔ | | | |
| Unit 2 — Use place value | | ✔ | ✔ | | | |
| Round numbers | | | ✔ | | | |
| Apply algorithms to operations without and with regrouping | | ✔ | ✔ | | | |
| Add and subtract two- and three-digit numbers with regrouping | | ✔ | ✔ | | | |
| Solve two-step word problems | | ✔ | ✔ | | | |
| **Multiplication and Division of One-Digit Numbers** | | | ✔ | ✔ | | |
| Unit 3 — Represent multiplication | | | ✔ | | | |
| Unit 3-4 — Skip count with TouchPoints | | | ✔ | ✔ | | |
| Multiply using even and odd numbers | | | ✔ | ✔ | | |
| Unit 4 — Multiply using models and cues | | | ✔ | ✔ | | |
| Multiply fluently with one-digit factors | | | ✔ | | | |
| Identify prime numbers | | | ✔ | ✔ | | |
| Represent division | | | ✔ | ✔ | | |
| Divide using models and cues | | | ✔ | ✔ | | |
| Divide fluently with two-digit dividends and one-digit divisors | | | ✔ | ✔ | | |
| Multiply and divide using relationships, properties, and patterns | | | ✔ | ✔ | | |
| Solve for unknowns | | | ✔ | ✔ | | |
| Use multiples and factors | | | ✔ | ✔ | | |
| Multiply and divide fluently in mixed practice | | | ✔ | ✔ | | |

# Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:-:|:-:|:-:|:-:|:-:|:-:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Multiplication and Division of Multi-Digit Numbers** | | | | ✔ | ✔ | ✔ |
| **Unit 5** Apply algorithms and relationships of operations to multiply and divide two-digit numbers by one-digit numbers | | | | ✔ | | |
| Find products/quotients for multi-digit numbers by one-digit numbers | | | | ✔ | | |
| Demonstrate long division and short division | | | | ✔ | | |
| Estimate products and quotients | | | | ✔ | ✔ | |
| Solve equations with unknowns | | | | ✔ | ✔ | |
| Apply understanding of algorithms to multi-digit factors | | | | | ✔ | |
| Compare products and quotients without performing the operations | | | | | ✔ | ✔ |
| Solve multi-step word problems | | | | | ✔ | ✔ |
| Verify solutions with calculators | | | | ✔ | ✔ | ✔ |
| **Mixed Operations with Whole Numbers** | | | | | ✔ | ✔ |
| **Unit 6** Apply relationships of operations | | | | | ✔ | ✔ |
| Compute with multi-digit numbers by one-digit numbers | | | | | ✔ | ✔ |
| Estimate, compute, and compare solutions with multi-digit numbers | | | | | ✔ | ✔ |
| Mentally compute with multiples of 10 and 100 | | | | | ✔ | ✔ |
| Use tools and strategies for computation | | | | | ✔ | ✔ |
| Find and read solutions through the ten-millions place | | | | | ✔ | ✔ |
| Order solutions | | | | | ✔ | ✔ |
| Recognize application in real world word problems | | | | | ✔ | ✔ |
| Verbalize processes to explain strategies | | | | | ✔ | ✔ |
| Demonstrate proficiency with whole numbers | | | | | | ✔ |
| **Fractions** | | | | ✔ | ✔ | |
| **Unit 7** Represent fractions | | | | ✔ | | |
| Associate fractions, fraction names, and representations | | | | ✔ | | |
| Understand equality and inequality | | | | ✔ | | |
| Compare and order fractions through sixteenths | | | | ✔ | | |
| Apply understanding to mixed numbers | | | | ✔ | ✔ | |
| Generate equivalent fractions | | | | ✔ | ✔ | |
| Simplify fractions | | | | ✔ | ✔ | |

## Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:-:|:-:|:-:|:-:|:-:|:-:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Operations with Fractions** | | | | ✔ | ✔ | ✔ |
| Add and subtract using models | | | | ✔ | ✔ | |
| Apply relationships of addition and subtraction | | | | ✔ | ✔ | |
| Demonstrate computation with unlike denominators | | | | ✔ | ✔ | |
| Solve equations | | | | | ✔ | |
| Solve multi-step word problems | | | | | ✔ | |
| Multiply and divide using models | | | | | ✔ | |
| Use algorithms and relationships to compute | | | | | ✔ | |
| Simplify solutions | | | | | | ✔ |
| Solve simple word problems | | | | | | ✔ |
| Demonstrate proficiency with mixed operations | | | | | | ✔ |
| Associate word problems with real world applications | | | | | | ✔ |
| Compare all forms of fractions | | | | | | ✔ |
| Create contexts for equations | | | | | | ✔ |
| Assess reasonableness of solutions | | | | | | ✔ |
| Use scaling and estimation | | | | | | ✔ |
| Exhibit proficiency with computation | | | | | | ✔ |
| **Decimals** | | | | ✔ | ✔ | |
| Represent decimals | | | | ✔ | | |
| Relate decimals to fractions | | | | ✔ | | |
| Associate decimals with place value and expanded notation | | | | ✔ | | |
| Read and write decimals | | | | ✔ | ✔ | |
| Order decimals | | | | | ✔ | |
| Round decimals | | | | | ✔ | |

Unit 8 (Operations with Fractions)
Unit 7 (Decimals)

## Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:-:|:-:|:-:|:-:|:-:|:-:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Operations with Decimals** | | | | | ✔ | ✔ |
| **Unit 8** Add and subtract with models | | | | | ✔ | |
| Apply relationships of addition and subtraction | | | | | ✔ | |
| Apply algorithms for whole numbers to decimals | | | | | ✔ | ✔ |
| Multiply and divide using models | | | | | ✔ | ✔ |
| Relate decimals to money | | | | | | ✔ |
| Solve multi-step word problems | | | | | | ✔ |
| Find and compare solutions | | | | | | ✔ |
| Solve for unknowns in word problems | | | | | | ✔ |
| Exhibit proficiency with computation | | | | | | ✔ |
| **Percents** | | | | | | ✔ |
| **Unit 7** Represent percents | | | | | | ✔ |
| Relate percents to money, decimals, and fractions | | | | | | ✔ |
| Associate percents with place value | | | | | | ✔ |
| Compare percents | | | | | | ✔ |
| Use percents less than, equal to, and greater than 100% | | | | | | ✔ |
| **Operations with Percents** | | | | | | ✔ |
| **Unit 8** Add and subtract using models | | | | | | ✔ |
| Apply operations in completing tables | | | | | | ✔ |
| Multiply and divide using relationships and algorithms | | | | | | ✔ |
| Solve real world word problems | | | | | | ✔ |
| Solve equations for unknowns using multiple operations | | | | | | ✔ |
| Exhibit proficiency with computation | | | | | | ✔ |
| **Relationships of Fractions, Decimals, and Percents** | | | | | | ✔ |
| **Unit 8** Compute with mixed operations and mixed representations | | | | | | ✔ |
| Solve multi-step, multi-operation word problems | | | | | | ✔ |
| Exhibit proficiency with all representations and operations | | | | | | ✔ |

## Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:---:|:---:|:---:|:---:|:---:|:---:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Geometry** | | | | ✔ | ✔ | |
| Unit 9 — Identify and understand relationships of components of 2-D shapes | | | | ✔ | | |
| Find fractional parts of shapes | | | | ✔ | | |
| Define and identify types of lines and angles in polygons | | | | ✔ | | |
| Estimate and measure angles | | | | ✔ | | |
| Explain complementary and supplementary angles | | | | ✔ | | |
| Classify polygons by properties | | | | | ✔ | |
| Generalize about symmetric figures | | | | | ✔ | |
| Differentiate among types of triangles | | | | | ✔ | |
| Compare and contrast five types of quadrilaterals | | | | | ✔ | |
| Recognize that shapes within a given category share attributes | | | | | ✔ | |
| Create a hierarchy of shapes | | | | | ✔ | |
| Recognize that 3-D shapes are comprised of 2-D shapes | | | | | ✔ | |
| **Perimeter, Area, and Volume** | | | | ✔ | ✔ | ✔ |
| Unit 9 — Define measures, and learn formulas | | | | ✔ | | |
| Find areas and perimeters of polygons | | | | ✔ | ✔ | |
| Compare formulas for quadrilaterals | | | | | ✔ | |
| Find and measure triangles within other polygons | | | | | ✔ | |
| Draw triangles and rectangles for given perimeters and areas | | | | | ✔ | |
| Decompose irregular polygons into rectangles | | | | | ✔ | |
| Use addition and subtraction to find measures of irregular polygons | | | | | ✔ | |
| Find unknown lengths for given perimeters or areas | | | | | ✔ | |
| Solve word problems using formulas | | | | | ✔ | |
| Use formulas to measure volumes of cubes and rectangular prisms | | | | | ✔ | |
| Unit 10 — Estimate, sketch, and draw angles with given measures | | | | | ✔ | |
| Compare actual and estimated measures | | | | | ✔ | |
| Create polygons on coordinate places | | | | | | ✔ |
| Use nets to build cubes, rectangular prisms, triangular prisms, and cylinders | | | | | | ✔ |
| Measure 3-D shapes | | | | | | ✔ |
| Find surface areas using formulas | | | | | | ✔ |
| Compare volumes and surface areas | | | | | | ✔ |
| Solve real world word problems | | | | | | ✔ |

# TOUCHMATH®

## Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:---:|:---:|:---:|:---:|:---:|:---:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Time** | | | ✔ | ✔ | | |
| Tell time to the minute | | | ✔ | | | |
| Find elapsed times | | | ✔ | | | |
| Use weekly, monthly, and yearly time periods | | | ✔ | ✔ | | |
| Solve word problems | | | ✔ | ✔ | | |
| **Money** | | | | ✔ | ✔ | |
| Count coins and bills | | | | ✔ | ✔ | |
| Compare amounts | | | | ✔ | ✔ | |
| Relate money to decimals | | | | ✔ | ✔ | |
| Solve word problems | | | | ✔ | ✔ | |
| Apply graphic organizers as strategies to find solutions | | | | ✔ | ✔ | |
| **Distance** | | | | ✔ | ✔ | |
| Find distances on number lines | | | | ✔ | ✔ | |
| Compare distances | | | | ✔ | ✔ | |
| Use multiple operations to solve word problems | | | | ✔ | ✔ | |
| **Measurement** | | | | ✔ | ✔ | |
| Use U.S. customary units of measure | | | | ✔ | | |
| Represent measurement quantities in tables and diagrams | | | | ✔ | | |
| Use relative measures for length, capacity, and mass | | | | ✔ | | |
| Recognize and write abbreviations | | | | ✔ | | |
| Convert among U.S. units of measure | | | | ✔ | ✔ | |
| Relate operations to making conversions | | | | ✔ | ✔ | |
| Use metric units of measure | | | | ✔ | | |
| Apply vocabulary | | | | ✔ | | |
| Correlate units to place value | | | | ✔ | | |
| Convert among metric units of measure | | | | ✔ | ✔ | |
| Convert from smaller units to larger units and larger units to smaller units | | | | ✔ | ✔ | |
| Convert units in both systems of measures to solve word problems | | | | | ✔ | |

Unit 9, Unit 9, Unit 9, Unit 10

TOUCHMATH®

## Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:---:|:---:|:---:|:---:|:---:|:---:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Data** | | | | ✔ | ✔ | ✔ |
| Use multiple representations for data | | | | ✔ | ✔ | ✔ |
| Read, understand, and compare data | | | | | ✔ | |
| Interpret data in bar graphs, histograms, line plots, and dot plots | | | | | ✔ | |
| Plot data from tables and word problems | | | | | ✔ | |
| Understand data in coordinate planes | | | | | ✔ | |
| Recognize appropriate representations of data | | | | | ✔ | |
| Develop basic understanding of statistics to analyze data | | | | | | ✔ |
| Define statistics in terms of data | | | | | | ✔ |
| Describe distribution of data | | | | | | ✔ |
| Summarize numerical data | | | | | | ✔ |
| Solve real world word problems | | | | | | ✔ |

Unit 9

## Basic Scope and Sequence continued

| | Basic Grade Levels 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| **Pre-Algebra** | | | | | | ✔ |
| Associate properties and operations | | | | | | ✔ |
| Understand and apply order of operations | | | | | | ✔ |
| Use exponents | | | | | | ✔ |
| Relate powers of 10 to place value | | | | | | ✔ |
| Find and compare products of exponents and factors | | | | | | ✔ |
| Use expanded notation in place value charts | | | | | | ✔ |
| Understand ratios as comparisons of quantities | | | | | | ✔ |
| Define rates as types of ratios | | | | | | ✔ |
| Apply graphic organizers including tape diagrams, double number lines, and tables to find unknowns in ratios | | | | | | ✔ |
| Recognize relationships of kinds of numbers (e.g., whole numbers, integers, rational numbers) | | | | | | ✔ |
| Demonstrate values of integers in relationship to 0 | | | | | | ✔ |
| Relate integers to real world applications | | | | | | ✔ |
| Apply operations to integers | | | | | | ✔ |
| Demonstrate addition and subtraction as opposite operations | | | | | | ✔ |
| Link operations to positive and negative numbers | | | | | | ✔ |
| Represent relationships on coordinate planes | | | | | | ✔ |
| Define types of integers in each quadrant | | | | | | ✔ |
| Order numbers on number lines | | | | | | ✔ |
| Reason with comparisons by asking thoughtful questions | | | | | | ✔ |
| Relate absolute values to relationships of integers | | | | | | ✔ |
| Graph ordered pairs and their absolute values | | | | | | ✔ |

Unit 10

## Basic Scope and Sequence continued

| | Basic Grade Levels | | | | | |
|---|:---:|:---:|:---:|:---:|:---:|:---:|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| **Expressions in Pre-Algebra** | | | | | | ✔ |
| Define and recognize variables | | | | | | ✔ |
| Apply exponents | | | | | | ✔ |
| Identify parts of expressions | | | | | | ✔ |
| Represent variables in tables with $x$ and $y$ | | | | | | ✔ |
| Plot ordered pairs using $x$ and $y$ coordinates | | | | | | ✔ |
| Write the value of $y$ based on the value of $x$ | | | | | | ✔ |
| Apply sets of values | | | | | | ✔ |
| Make generalizations based on sets of values | | | | | | ✔ |
| Use variables with integers, fractions, decimals, coefficients, and exponents | | | | | | ✔ |
| Use formulas | | | | | | ✔ |
| Solve word problems using formulas | | | | | | ✔ |
| Identify different types of variables | | | | | | ✔ |
| Plot two equations on the same grid, and compare their slopes | | | | | | ✔ |
| **Patterns in Pre-Algebra** | | | ✔ | ✔ | ✔ | ✔ |
| Understand patterns as relationships among numbers | | | ✔ | ✔ | ✔ | ✔ |
| Use integers and rational numbers in patterns | | | | | ✔ | ✔ |
| Compare pairs of patterns | | | | | | ✔ |
| Plot pairs of patterns on coordinate planes | | | | | | ✔ |
| Integrate skills into pre-algebraic thinking | | | | | | ✔ |

Unit 10 — Expressions in Pre-Algebra

Unit 10 — Patterns in Pre-Algebra

# Notes

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## Notes