TOUCHMATH®

SCOPE AND SEQUENCE

STANDARDS-BASED PROGRAMS

- PRE-K
- KINDERGARTEN
- FIRST GRADE
- SECOND GRADE

TOUCHMATH

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

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TABLE OF CONTENTS

Introduction **2**

Pre-K **3**

Counting and Cardinality: Number Sense (Readiness) 3
Counting and Cardinality: Number Concepts and Numerals 3
Measurement and Data: Classifying (Readiness) 4
Geometry: Spatial Concepts 4
Operations and Algebraic Thinking: Readiness for Adding and Subtracting 5
Measurement and Data: Graphs (Readiness) 6

Kindergarten **7**

Counting and Cardinality 7
Operations and Algebraic Thinking 8
Number and Operations in Base Ten 9
Measurement and Data 9
Geometry 10
Financial Literacy 11

First Grade **12**

Operations and Algebraic Thinking 12
Number and Operations in Base Ten 13
Measurement and Data 15
Geometry 16

Second Grade **18**

Operations and Algebraic Thinking 18
Number and Operations in Base Ten 20
Measurement and Data 23
Geometry 26

INTRODUCTION

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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