

Big Book Math™ Set 1

Content and Process Skills

Counting at the Zoo – Numbers 1–10	Match-Up Fun	Counting at the Store – Numbers 1–20	Taking Apart Numbers	It All Adds Up	How Many Are Left?	More Than 10	Let's Compare!	Look for Shapes	Solid Shapes
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Counting and Cardinality

Know number names and the count sequence.

Count to 100 by ones and by tens. K.CC.1				•					
Count forward beginning from a given number within the known sequence (instead of having to begin at 1). K.CC.2				•	•				
Write numbers from 0 to 20. Represent number of objects with a written numeral 0-20 (with 0 representing a count of no objects). K.CC.3	•		•	•	•	•		•	•

Count to tell the number of objects.

Understand the relationship between numbers and quantities; connect counting to cardinality. K.CC.4	•	•	•	•	•	•			•	•
When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. K.CC.4.a	•	•	•						•	•
Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. K.CC.4.b	•	•	•						•	•
Understand that each successive number name refers to a quantity that is one larger. K.CC.4.c	•	•	•	•			•		•	•
Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects. K.CC.5	•	•	•				•		•	•
Subitize to determine quantity.	•	•								
Associate quantities and the names of numbers with written numerals.	•		•							

Compare numbers.

Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group (e.g., by using matching and counting strategies). K.CC.6		•							•	•
Compare two numbers between 1 and 10 presented as written numerals. K.CC.7		•	•							
Develop understanding of ordinal numbers (first through tenth) to describe the relative position and magnitude of whole numbers.		•								
Recite numbers in the correct order and understand that numbers come "before" or "after" one another.		•								

Operations and Algebraic Thinking

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. K.OA.1				•	•	•	•			
Solve addition and subtraction word problems, and add and subtract within 10 (e.g., by using objects or drawings to represent the problem). K.OA.2				•	•	•				
Decompose numbers less than or equal to 10 into pairs in more than one way (e.g., by using objects or drawings), and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$). K.OA.3				•			•			
For any number from 1 to 9, find the number that makes 10 when added to the given number (e.g., by using objects or drawings), and record the answer with a drawing or equation. K.OA.4				•						
Fluently add and subtract within 5. K.OA.5				•	•					

Number and Operations in Base Ten

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

Compose and decompose numbers from 11 to 19 into ten ones and some further ones (e.g., by using objects or drawings), and record each composition or decomposition by a drawing or equation (e.g., $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. K.NBT.1									•	
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	Counting at the Zoo – Numbers 1–10	Match-Up Fun	Counting at the Store – Numbers 11–20	Taking Apart Numbers	It All Adds Up	How Many Are Left?	More Than 10	Let's Compare!	Look for Shapes	Solid Shapes
Measurement and Data										
Describe and compare measurable attributes.										
Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. K.MD.1								•		
Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. K.MD.2								•		
Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. K.MD.3								•	•	•
Geometry										
Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).										
Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as <i>above</i> , <i>below</i> , <i>beside</i> , <i>in front of</i> , <i>behind</i> , and <i>next to</i> . K.G.1									•	•
Correctly name shapes, regardless of their orientations or overall size. K.G.2									•	•
Identify shapes as two-dimensional (lying in a plane, "flat") or three dimensional ("solid"). K.G.3									•	•
Understand directionality, order, and position of objects, such as <i>up</i> , <i>down</i> , <i>in front of</i> , <i>behind</i> .									•	•
Recognize and name common shapes, their parts, and attributes.									•	•
Analyze, compare, create, and compose shapes.										
Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length). K.G.4									•	•
Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes. K.G.5									•	•
Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?" K.G.6									•	
Collect, sort, and organize data into two or three categories.									•	•
Use data to create real-object and picture graphs.	•								•	•
Draw conclusions from real-object and picture graphs.									•	•
Recognize, duplicate, and extend simple patterns.									•	
Sort, classify, and serialize (put in a pattern) objects using attributes, such as color, shape, or size.									•	
Create patterns through the repetition of a unit.									•	
Standards for Mathematical Practice										
Mathematical Practice 1: Make sense of problems and persevere in solving them.	•	•	•	•	•	•	•	•	•	•
Mathematical Practice 2: Reason abstractly and quantitatively.	•	•	•	•	•	•	•	•	•	•
Mathematical Practice 3: Construct viable arguments and critique the reasoning of others.	•	•	•	•	•	•	•	•	•	•
Mathematical Practice 4: Model with mathematics.	•	•	•	•	•	•	•	•	•	•
Mathematical Practice 5: Use appropriate tools strategically.	•	•	•	•	•	•	•	•	•	•
Mathematical Practice 6: Attend to precision.	•	•	•	•	•	•	•	•	•	•
Mathematical Practice 7: Look for and make use of structure.	•	•	•	•	•	•	•	•		
Mathematical Practice 8: Look for and express regularity in repeated reasoning.	•	•	•	•	•	•	•	•	•	•

Big Book Math™ Set 2

Content and Process Skills

How Many Parts? Counting to 10 and Beyond	Right Down the Middle	Over, Under, In, and Out	Are They Equal?	Let's Measure with Tools	What Time Is It?	How Else Can We Show It?	Is It Likely to Happen?	Let's Figure It Out!
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Number								
Understands numbers, ways of representing numbers, relationships among numbers, and number systems								
Counts by ones to 20 or higher (rote counting)		•				•		
Counts concrete objects to 20 or higher		•				•		
Counts along a number line		•				•	•	
Compares the numbers of concrete objects using mathematical language (same, equal, greater, fewer, etc.)	•	•	•		•	•	•	•
Recognizes and names, without touching or counting, how many are in a set of objects (recognizing four or five pencils on a table, etc.)	•	•			•	•	•	•
Recognizes and describes the concept of zero ("there are none" or an empty set)		•				•	•	•
Uses objects to represent numbers grouped as tens and ones		•						
Demonstrates part and whole relationship with real objects	•	•	•			•	•	
Begins to understand and represent commonly used fractions, such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$	•		•			•		•
Geometry								
Analyzes characteristics and properties of two- and three-dimensional shapes and develops mathematical arguments about geometric relationships								
Names and describes two- and three-dimensional shapes and their attributes			•	•	•	•	•	•
Uses geometric shapes in the environment to describe the physical world			•	•		•		
Compares the shape and size of two or more shapes			•			•		
Puts together puzzles of increasing complexity	•		•					
Matches, sorts, puts in series, and re-sorts objects by attributes							•	
Investigates and predicts the results of putting together or taking apart two or more shapes			•					
Specifies locations and describes spatial relationships using coordinate geometry and other representational systems								
Uses positional words to describe where things are in space (beside, inside, behind, above, below, under, on, over, etc.)			•	•	•			
Recognizes when a shape's position or orientation has changed (directionality)			•	•	•			
Begins to interpret direction and distance in navigating space				•		•		
Applies simple location relationships such as near, left, right			•	•				
Applies transformations and uses symmetry to analyze mathematical situations								
Recognizes and performs slides, flips, and turns with objects			•					
Recognizes and creates shapes that have line symmetry			•					
Uses visualization, spatial reasoning, and geometric modeling to solve problems								
Creates mental images of geometric shapes using spatial memory and spatial visualization			•	•				
Recognizes and represents shapes from different perspectives			•	•				
Relates ideas in geometry to ideas in number and measurement	•					•		
Algebra								
Understands patterns, relations, and functions								
Recognizes, describes, reproduces, extends, and creates patterns of concrete objects, sounds, actions, pictures, and numerals		•	•	•			•	
Recognizes and predicts patterns in the environment (repeated storybook phrases, carpet or clothing patterns, etc.)			•				•	
Analyzes how both repeating and growing patterns are generated		•	•	•				
Matches, sorts, puts in a series, and re-sorts objects according to one or more attributes, such as size, shape, color, texture			•				•	
Represents and analyzes mathematical situations and structures using algebraic symbols								
Uses concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations		•				•		•
Begins to understand general principles and properties of addition, such as commutativity						•		

	How Many Parts?	Counting to 10 and Beyond	Right Down the Middle	Over, Under, In, and Out	Are They Equal?	Let's Measure with Tools	What Time Is It?	How Else Can We Show It?	Is It Likely to Happen?	Let's Figure It Out!
Algebra (Continued)										
Uses mathematical models to represent and understand quantitative relationships										
Models situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols		•			•					•
Analyzes change in various contexts										
Describes qualitative and quantitative change	•	•	•		•	•	•	•	•	•
Measurement										
Understands measurable attributes of objects and the units, systems, and processes of measurement										
Shows progress in recognizing the attributes of length, volume, weight, area, and time					•	•				
Compares and orders objects according to one or more measurement attribute—length, area, volume, weight, temperature					•					
Uses standard and nonstandard units to compare, estimate, and measure					•	•				
Begins to select an appropriate unit and tool for the attribute being measured					•	•				
Categorizes time intervals and uses language associated with time in everyday situations (before school, in the afternoon, after music, etc.)	•						•			
Anticipates, remembers, and describes sequence of events								•		
Applies appropriate techniques, tools, and formulas to determine measurement										
Shows progress in measuring with multiple copies of units of the same size, such as paper clips laid end to end					•					
Uses repetition of a single unit to measure something larger than the unit, for instance, measuring the length of a room with a single meter stick					•					
Chooses appropriate tools to measure length					•					
Begins to develop common referents for measurement to make comparisons and estimates					•	•				
Data Analysis										
Formulates questions that can be addressed with data; collects, organizes, and displays relevant data to answer them										
Describes differences and similarities between objects			•		•			•		
Sorts and classifies objects into groups by using one or more attributes, and explains how the grouping was done			•		•			•		
Interprets simple representations in data (calendar, graphs, charts, etc.)		•	•	•	•	•	•	•	•	
Predicts, collects, organizes, represents, interprets, and analyzes data about self, surroundings, and meaningful experiences by using concrete objects, pictures, and graphs			•		•			•	•	
Selects and uses appropriate statistical methods to analyze data										
Shows progress in describing parts of the data and the set of data as a whole to determine what the data shows		•			•			•	•	
Develops and evaluates inferences and predictions that are based on data										
Understands events related to child's own experiences as likely or unlikely					•				•	•
Understands and applies the basic concepts of probability										
Shows progress in understanding the basic concepts of probability					•				•	
Number Operations										
Understands meaning of operations and how they relate to one another										
Shows progress in understanding addition and subtraction of whole numbers, the operations' effects, and the relationship between the two operations		•			•					•
Develops initial understanding of situations that involve multiplication and division, such as equal groupings of real objects, sharing equally, and dividing into fractions	•		•		•					•
Begins to apply and adapt a variety of appropriate strategies to solve math problems	•	•	•	•	•	•	•	•	•	•
Compute fluently and makes reasonable estimates										
Shows progress in developing and using strategies for whole-number computations, with a focus on addition and subtraction		•			•				•	•
Shows progress in developing fluency with basic number combinations for addition and subtraction		•			•					•
Uses a variety of methods and tools to count and compute, including objects, mental computation, estimation, paper and pencil, and calculators		•			•	•	•	•	•	•