

Mathseeds Kindergarten: Lesson 1-50

Students learn fundamental number skills including number recognition, number words and counting. Students learn to count forward and backward to twenty with confidence. They use a range of techniques including ten frames and number lines. They also learn the number words up to twenty. Students learn to add to ten and their doubles facts to double five.

Students learn the four basic 2D shapes: circle, square, triangle and rectangle. They distinguish between colors and investigate some simple concepts of size: big, small, short, tall etc. Lessons cover the concepts of more time and less time, life cycles and days of the week. Students develop their understanding of 2D shapes by sorting them according to their properties. They are also introduced to the 3D shapes: sphere, cube, cone and cylinder.



GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
K	1	Number 1	Counting & Cardinality	Count to 1. Know, read and write the numeral 1. Read the word one. Represent a number of objects with a written number.
K	2	Number 2	Counting & Cardinality	Count to 2. Know, read and write the numeral 2. Read the word two. Represent a number of objects with a written number.
K	3	Number 3	Counting & Cardinality	Count to 3. Know, read and write the numeral 3. Read the word three. Represent a number of objects with a written number.
K	4	Circles	Geometry	Name circles in the environment. Sort shapes. Name circles in different orientations and sizes.
K	5	Number 4	Counting & Cardinality	Count to 4. Know, read and write the numeral 4. Read the word four. Represent a number of objects with a written number. Compare 4 to other numbers. Count to answer "How many?" questions.
K	6	Squares	Geometry	Name squares in the environment. Sort shapes. Name squares in different orientations and sizes.
K	7	Number 5	Counting & Cardinality	Count to 5. Know, read and write the numeral 5. Read the word five. Represent a number of objects with a written number. Compare 5 to other numbers. Connect counting to cardinality.
K	8	Colors	Measurement & Data	Copy, continue and create patterns with objects and drawings. Identify colors. Match objects to color name. Identify colors when two primary colors are mixed.
K	9	Triangles	Geometry	Name triangles in the environment. Sort shapes. Name triangles in different orientations and sizes.
K	10	Numbers 1-5 Revision	Counting & Cardinality	Count to 5. Know, read and write the numerals 1-5. Read the words: one, two, three, four, five. Represent a number of objects with a written number. Compare numbers. Connect counting to cardinality.
K	11	Number 6	Counting & Cardinality	Count to 6. Know, read and write the numeral 6. Read the word six. Represent a number of objects with a written number. Compare 6 to other numbers. Connect counting to cardinality.
K	12	Number 7	Counting & Cardinality	Count to 7. Know, read and write the numeral 7. Read the word seven. Represent a number of objects with a written number. Compare 7 to other numbers. Connect counting to cardinality. Count to answer "How many?" questions.
K	13	Big and Small	Measurement & Data	Compare objects. Use measurement language to describe objects.
K	14	Number 8	Counting & Cardinality	Count to 8. Know, read and write the numeral 8. Read the word eight. Represent a number of objects with a written number. Compare 8 to other numbers. Connect counting to cardinality. Count to answer "How many?" questions.
K	15	Rectangles	Geometry	Name rectangles in the environment. Sort shapes. Name rectangles in different orientations and sizes.
K	16	Numbers 1-8	Counting & Cardinality	Count to 1-8. Know, read and write the numerals 1-8. Read the words: three, five, seven, eight. Represent a number of objects with a written number. Compare numbers written as numerals. Connect counting to cardinality.
K	17	Number 9	Counting & Cardinality	Count to 9. Know, read and write the numeral 9. Read the word nine. Represent a number of objects with a written number. Compare 9 to other numbers. Connect counting to cardinality.

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K	18	Zero, Ordering Numbers	Counting & Cardinality	Know, read and write the numeral 0. Read the word zero. Compare 0 to other numbers. Connect counting to cardinality. Count to answer "How many?" questions. Compare numbers written as numerals. Sequence numbers, counting forward.
K	19	Number 10	Counting & Cardinality	Count to 10. Know, read and write the numeral 10. Read the word ten. Compare 10 to other numbers. Connect counting to cardinality. Count to answer "How many?" questions. Represent a number of objects with a written number.
K	20	Numbers 1-10 Revision	Counting & Cardinality	Count to 10. Know, read and write the numerals 1-10. Represent a number of objects with a written number. Compare numbers written as numerals. Sequence numbers, counting forward and backward.
K	21	Counting Back from 10	Counting & Cardinality	Count to 10. Know, read and write the numerals 1-10. Read the words: six, seven, ten. Compare groups of objects. Sequence numbers, counting backward. Subitize small groups of objects in different formations.
K	22	More, Less and the Same	Counting & Cardinality	Count to 10. Know, read and write the numerals 1-10. Compare groups of objects. Use comparative language: more, less, the same. Sequence numbers, counting backward.
K	23	2D Shapes	Geometry	Name triangles, squares, rectangles and circles in the environment. Match and sort shapes. Name shapes in different orientations and sizes. Identify straight, wavy and zig-zag lines. Copy, continue and create patterns.
K	24	Adding to 5	Operations & Algebraic Thinking	Connect counting to addition. Model addition with objects. Write equations for addends to 5. Subitize small groups of objects in different formations.
K	25	Number Lines 1-10	Counting & Cardinality	Count to 10. Read number words to ten. Connect counting to cardinality. Sequence numbers, counting forward and backward. Find pairs of numbers that make 10. Count to answer "How many?" questions.
K	26	Long and Short	Measurement & Data	Compare and order which is longer or shorter using everyday language. Use comparative language: big, small, short, tall, tallest, longest, shortest.
K	27	Patterns	Measurement & Data	Copy, continue and create patterns. Identify colors. Match objects to color names.
K	28	Number Lines	Counting & Cardinality	Count to 10. Read number words to ten. Connect counting to cardinality. Sequence numbers, counting forward and backward. Count to answer "How many?" questions. Subitize small groups of objects in different formations.
K	29	Heavy and Light	Measurement & Data	Compare and order which is heavier or lighter using everyday language. Use comparative language: big, small, heavy, light, heavier, lighter.
K	30	Adding to 6	Operations & Algebraic Thinking	Connect counting to addition. Model addition with objects. Write equations for addends to 6. Subitize small groups of objects in different formations.
K	31	Counting to 10	Counting & Cardinality	Sequence numbers, counting forward and backward. Estimate the quantity of items in a group. Compare groups of objects. Use comparative language: more, less, the same. Count to answer "How many?" questions. Find pairs of numbers that make 10.
K	32	Add to 7	Operations & Algebraic Thinking	Connect counting to addition. Model addition with objects. Write equations for addends to 7. Compare groups of objects. Subitize small groups of objects in different formations.
K	33	Number Words to 10	Counting & Cardinality	Read the words: zero, one, two, three, four, five, six, seven, eight, nine, ten.



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GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
K	34	Add to 10	Operations & Algebraic Thinking	Connect counting to addition. Model addition with objects. Write equations for addends to 10. Find pairs of numbers that make 10. Subitize small groups of objects in different formations.
K	35	The Cube & Sphere	Geometry	Name cubes and spheres in the environment. Match and sort cubes and spheres. Identify objects that can be stacked and those that roll.
K	36	Add to 10	Operations & Algebraic Thinking	Connect counting to addition. Model addition with objects. Write equations for addends to 10. Find pairs of numbers that make 10.
K	37	Patterns 2	Measurement & Data	Copy, continue and create patterns.
K	38	Capacity	Measurement & Data	Use comparisons to decide which holds more or less. Use comparative language: full, empty, big, small, short, tall.
K	39	Time	Measurement & Data	Compare and order events using the everyday language of time.
K	40	Add to 10 on a Number Line	Operations & Algebraic Thinking	Connect counting to addition. Add on a number line. Model addition with objects. Write equations for addends to 10. Find pairs of numbers that make 10.
K	41	Numbers 11 & 12	Counting & Cardinality	Count to 12. Know, read and write the numerals 11 & 12. Read number words to twelve. Represent a number of objects with a written number. Compare numbers. Connect counting to cardinality. Subitize small groups of objects in different formations.
K	42	Days of the Week	Measurement & Data	Connect days of the week to familiar events and actions.
K	43	Numbers 13, 14 & 15	Counting & Cardinality	Count to 15. Know, read and write the numerals 13, 14, 15. Read number words to fifteen. Represent a number of objects with a written number. Compare numbers. Connect counting to cardinality.
K	44	The Cone & Cylinder	Geometry	Name cones and cylinders in the environment. Match and sort cones and cylinders. Name cones and cylinders in different sizes.
K	45	Numbers 16 & 17	Number & Operations in Base Ten	Count to 17. Know, read and write the numerals 16 & 17. Read number words to seventeen. Represent a number of objects with a written number. Compose and decompose the numbers 11, 12, 13, 15 into tens and ones. Compare groups of objects. Use comparative language: more, less, the same.
K	46	Numbers 18, 19 & 20	Number & Operations in Base Ten	Count to 20. Know, read and write numbers to 20. Read number words to twenty. Represent a number of objects with a written number. Compose and decompose the numbers 12, 14, 16, 19 into tens and ones. Compare groups of objects. Use comparative language: more, less, the same.
K	47	Number Lines to 20	Counting & Cardinality	Count to 20. Read number words to twenty. Sequence numbers, counting forward and backward. Count to answer "How many?" questions. Connect counting to addition. Model addition for addends to 10.
K	48	Number Words 11-20	Counting & Cardinality	Count to 20. Read number words to twenty.
K	49	Doubles to Double 5	Operations & Algebraic Thinking	Connect counting to addition. Model addition. Write equations for addends to 10. Find pairs of numbers that make 10. Subitize small groups of objects in different formations.
K	50	Revision 0-20	Number & Operations in Base Ten	Count to 20. Know, read and write numbers to 20. Read number words to twenty. Compose and decompose teen numbers into tens and ones. Use comparative language: smaller, larger. Sequence numbers, count forward and backward.



Mathseeds Grade 1: Lesson 51–100

Students learn to count to 100, order numbers and identify ordinal numbers to 10th. They develop an understanding of place value including regrouping. Students practice their subtraction skills. They add and subtract to 10, and then within 100. Strategies include counting on, counting back, near doubles and using number fact families. Students learn how to skip count by 2s, 5s and 10s, as well as the early multiplication and division skills of grouping and sharing.

Students identify bills and coins, and use addition to find amounts of money. They explore fractions, focusing on wholes, halves and fourths. Students continue to investigate the features of 2D shapes and 3D objects. They follow simple directions to a particular location and learn to read clocks to the half-hour. They work with early chance concepts, tally charts and simple picture graphs.



GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
1	51	Addition to 10 with Two and Three groups	Operations & Algebraic Thinking	Solve addition of three whole numbers. Use the count on strategy. Represent numerals with objects to solve addition problems. Understand the equal sign and work out if addition equations are true or false.
1	52	Sorting and Grouping 2D Shapes	Geometry	Recognize and classify familiar two-dimensional shapes. Compose two-dimensional shapes. Match two-dimensional shapes to their names. Identify shapes as two-dimensional or three-dimensional.
1	53	Subtraction 1	Operations & Algebraic Thinking	Solve subtraction problems using objects and equations. Represent objects with a written numeral to solve subtraction problems. Represent a written numeral with objects to solve subtraction problems.
1	54	O'clock	Measurement & Data	Tell and write time in hours and half-hours. Use analog and digital clocks. Use comparative language: longer time, shorter time.
1	55	Near and Far	Measurement & Data	Compare and select which is longer or shorter. Sort objects according to height. Describe position and movement using the everyday language of location and direction. Use comparative language: near, far, behind, in front, on, next to, big, small, short, tall, longest, shortest.
1	56	Subtraction 2	Operations & Algebraic Thinking	Represent objects with a written numeral to solve subtraction problems. Represent a written numeral with objects to solve subtraction problems. Work out the unknown number in a subtraction equation. Find pairs of numbers that make 10.
1	57	Position 1	Geometry	Follow directions to familiar locations. Understand position words when giving and following directions: right, left, above, below, next to, between, forward, under.
1	58	Subtraction on a Number Line	Operations & Algebraic Thinking	Solve subtraction problems using a number line. Represent objects with a written numeral to solve subtraction problems. Represent a written numeral with objects to solve subtraction problems. Work out the unknown number in a subtraction equation.
1	59	Area	Measurement & Data	Understand that area measures how much a surface covers. Sort objects according to height. Sort objects according to area. Compare to identify and order area. Count to measure area. Use comparative language: big, small, short, tall, largest, smallest.
1	60	Counting 20-30	Number & Operations in Base Ten	Count to 30 starting at any number. Read and write numerals. Represent a number of objects with a written numeral. Compose two-digit numbers using tens and ones. Compare groups of objects. Use comparative language: larger, smaller.
1	61	Wholes and Halves	Geometry	Partition objects into halves. Identify and color one half of different 2D shapes. Recognize to share equally between two, each share is one half. Read fraction notation.
1	62	Sorting and Grouping 3D Objects	Measurement & Data	Identify shapes that stack. Identify shapes that roll. Identify shapes that slide. Name 3D objects. Identify the number of sides and corners on a 3D object.

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GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
1	63	Ordinal Numbers	Measurement & Data	Read and represent position using ordinal numbers in a sequence.
1	64	Money	Measurement & Data	Count and order money. Solve addition problems using coins. Solve addition problems involving money.
1	65	Addition to 20	Operations & Algebraic Thinking	Solve addition of three whole numbers. Use the count on strategy. Solve addition problems using a number line. Solve addition problems by counting by twos. Compose numbers from 11 to 19 into tens and ones. Make number bonds for numbers to 20.
1	66	Halves and Quarters	Geometry	Partition objects into halves and fourths. Identify and color one half and one fourth of different 2D shapes. Recognize to share equally between two, three and four. Read fraction notation.
1	67	Counting 30-40	Number & Operations in Base Ten	Count to 40 starting at any number. Read and write numerals. Represent a number of objects with a written numeral. Compose two-digit numbers using tens and ones. Make number bonds to 30 with three addends.
1	68	Find the Difference 1	Operations & Algebraic Thinking	Solve subtraction problems using find the difference. Represent objects with a written numeral to solve subtraction problems. Represent a written numeral with objects to solve subtraction problems. Work out the unknown number in a subtraction equation.
1	69	Putting Shapes Together	Geometry	Compose two-dimensional shapes to create a composite shape. Compose three-dimensional objects to create a composite object.
1	70	O'clock & Half Past	Measurement & Data	Tell and write time in hours and half-hours. Use analog and digital clocks. Use comparative language: longer time, shorter time.
1	71	Sharing 1	Operations & Algebraic Thinking	Share a collection of objects into two, three, four or six equal groups.
1	72	Doubles to Double 10	Operations & Algebraic Thinking	Solve addition problems using doubles as a strategy. Compare groups of objects. Use comparative language: larger, smaller. Find pairs of numbers that make 10. Solve addition of three whole numbers. Make number bonds for numbers to 20.
1	73	Mass	Measurement & Data	Compare and order which is heavier or lighter. Use comparative language: heavy, heavier, heaviest, light, lighter, lightest, balance.
1	74	Grouping	Operations & Algebraic Thinking	Sort and describe a collection of objects as a group. Represent multiplication as groups through equal sharing. Identify collections with the same number of objects. Count out groups to answer "How many?" questions. Skip count to find the total.
1	75	Counting 40-50	Number & Operations in Base Ten	Count to 50 starting at any number. Read and write numerals. Compose two-digit numbers using tens and ones. Make number bonds for numbers to 20. Make number bonds to 30 with three addends.
1	76	The Equal Sign	Operations & Algebraic Thinking	Understand the equal sign. Work out if an equation using an equal sign is true or false. Make number bonds for numbers to 20.
1	77	Skip Counting by 2s & 5s	Number & Operations in Base Ten	Solve problems counting by twos and fives. Solve problems on the number line counting by twos and fives. Find groups of two. Count out groups to answer "How many?" questions.
1	78	Position 2	Geometry	Follow directions to familiar locations. Understand position words when giving and following directions: right, left, above, below, next to, between, forward, under.
1	79	Counting by 10s	Number & Operations in Base Ten	Sort objects into groups of ten. Recognize ten as a bundle of ten ones. Skip count by tens. Compose two-digit numbers using tens and ones. Count and create collections by partitioning numbers using place value.
1	80	Data 1	Measurement & Data	Represent data with objects and drawings. Sort data and represent using tally marks. Understand one-to-one correspondence. Answer questions about data.
1	81	Counting 50-70	Number & Operations in Base Ten	Count to 70 starting at any number. Read and write numerals. Order numbers on a number line. Order numbers on a number chart. Compare groups of objects. Use comparative language: larger, smaller. Count and create collections by partitioning numbers using place value.
1	82	Chance 1	Measurement & Data	Identify outcomes of familiar events. Use everyday chance language: will happen, won't happen, might happen, possible, impossible. Use comparative language: more likely, less likely.

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GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
1	83	Money 2	Measurement & Data	Solve addition problems involving money. Identify coins and bills. Match money to symbols: \$, ¢. Compare the cost of items. Use different denominations of bills and coins to make amounts. Solve subtraction problems requiring change.
1	84	Measuring Length	Measurement & Data	Compare and select which is longer or shorter. Measure and compare the lengths of pairs of objects using uniform informal units. Sort objects according to length. Use comparative language: longer, longest, shorter, shortest.
1	85	Find the Difference 2	Operations & Algebraic Thinking	Solve subtraction problems using find the difference. Represent objects with a written numeral to solve subtraction problems. Solve subtraction problems using a number line. Represent a written numeral with objects to solve subtraction problems. Work out the unknown number in a subtraction equation.
1	86	Counting 70-100	Number & Operations in Base Ten	Count to 100 starting at any number. Read and write numerals. Order numbers on a number line. Order numbers on a number chart. Compare groups of objects. Use comparative language: larger, smaller. Understand the meaning of the equal sign to determine true or false.
1	87	Half Past and Digital Time	Measurement & Data	Tell and write time in hours and half-hours. Use analog and digital clocks.
1	88	Trading Tens	Number & Operations in Base Ten	Sort objects into groups of ten. Recognize ten as a bundle of ten ones. Compose two-digit numbers using tens and ones. Count and create collections by partitioning numbers using place value. Order numbers on a number chart.
1	89	Capacity 2	Measurement & Data	Use comparisons to decide which holds more or less. Use comparative language: empty, full, least, most. Compare capacities using a range of containers. Measure the capacity of a container using informal units.
1	90	Skip Counting	Number & Operations in Base Ten	Skip count by twos and fives. Make number bonds for numbers to 20. Solve problems for the addition of three whole numbers. Use repeated addition to model and answer multiplication questions.
1	91	Near Doubles to 20	Operations & Algebraic Thinking	Solve addition problems using the near doubles strategy. Use add to ten first as an addition strategy. Skip count by fives. Find different sums that add to make the same number. Solve addition of three whole numbers. Make number bonds for numbers to 20. Count and create numbers by partitioning numbers using place value.
1	92	Change from \$20	Operations & Algebraic Thinking	Solve addition problems involving money. Identify coins and bills. Match money using symbols: \$, ¢. Compare the cost of items. Use different denominations of bills and coins to make amounts. Solve subtraction problems requiring change.
1	93	Number Fact Families	Operations & Algebraic Thinking	Solve problems using the commutative property of addition. Fluently add to 10. Recognize different number combinations that make number fact families. Understand the equal sign. Work out if addition equations are true or false. Subitize small groups of objects in different formations.
1	94	Position 3	Geometry	Follow directions to familiar locations. Understand position words when giving and following directions: right, left, above, below, beneath, underneath, on top of, next to, between, beside, forward, under, clockwise, counterclockwise.
1	95	Add Within 100	Number & Operations in Base Ten	Add a two-digit number and a one-digit number. Use strategies based on place value. Add two-digit numbers requiring sometimes to compose a ten. Add on a number line. Order numbers on a number chart. Solve addition problems using counting on as a strategy. Solve word problems using addition. Add multiples of ten to a two-digit number. Recognize different number combinations that make number fact families.



Mathseeds Grade 1: Lesson 51–100

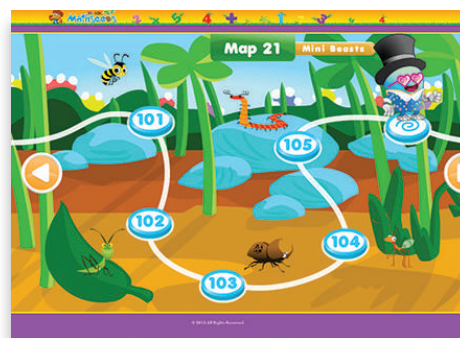
GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
1	96	Bridging to Ten	Number & Operations in Base Ten	Solve addition problems using the bridge to ten strategy. Solve addition problems using a number line. Write equations to solve addition problems. Understand the equal sign. Work out if addition equations are true or false. Use comparative language: larger, smaller. Solve addition problems using the jump strategy. Add multiples of ten to a two-digit number.
1	97	Data 2	Measurement & Data	Represent data with objects and drawings. Sort data and represent using tally marks. Understand one-to-one correspondence. Answer questions about data.
1	98	Add and Subtract Tens	Number & Operations in Base Ten	Add and subtract multiples of ten to a two-digit number. Add and subtract on a number line. Add and subtract using a numbers chart. Understand the equal sign. Work out if addition equations are true or false. Solve addition problems by using the count on strategy. Subitize small groups of objects in different formations.
1	99	3D Objects	Geometry	Recognize and sort two-dimensional shapes that are the faces of three-dimensional objects. Identify prisms. Identify faces of prisms. Recognize features of prisms. Identify objects shaped as prisms.
1	100	Subtracting Unknown Numbers	Operations & Algebraic Thinking	Find the unknown number in a subtraction equation. Solve problems using the commutative property of addition. Fluently add to 10. Recognize different number combinations that make number fact families. Solve subtraction problems by using the count on strategy. Solve subtraction problems requiring change.



Mathseeds Grade 2: Lesson 101-150

Students learn to count to 1000, identify odd and even numbers and round to the nearest 10 and 100. They build their place value skills, composing and decomposing numbers to 999. Students develop addition and subtraction strategies including the 'jump' and 'split' methods, as well as vertical addition and subtraction. Students practice grouping and sharing, and use the multiplication and division signs. They learn how to find a fraction of a collection of items.

Students investigate length and learn how to measure in meters and centimeters. They work with 2D shapes, make patterns that move and reflect, and study the features of 3D objects. Students tell time to the nearest 5 minutes and use a calendar to identify particular dates. They construct tally charts and picture graphs, and interpret data in a variety of ways.



GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
2	101	Counting 100-500	Number & Operations in Base Ten	Read and write numbers to 500. Count to 500 using base-ten numerals, number names, and expanded form. Know three-digit numbers represent amounts of hundreds, tens, and ones. Add 1, 10 or 100 to a given number 100-900. Subtract 1, 10 or 100 from a given number 100-900.
2	102	Moving Shapes	Geometry	Understand the effect of one-step slides, flips and turns. Know that moved objects do not alter size or features. Identify a quarter and half turn. Tessellate shapes.
2	103	Adding 9	Number & Operations in Base Ten	Use the jump strategy to add 9 to numbers. Understand the equal sign. Work out if addition equations are true or false. Subitize small groups of objects in different formations.
2	104	Measuring	Measurement & Data	Estimate lengths using meters. Measure lengths using meters. Compare lengths. Use comparative language: more than 1m; 1m; less than 1m.
2	105	Partitioning Numbers to 1000	Number & Operations in Base Ten	Read and write numbers to 500. Count to 500 using base-ten numerals, number names, and expanded form. Know three-digit numbers represent amounts of hundreds, tens, and ones. Compose and decompose two- and three-digit numbers using tens and ones.
2	106	Counting 500-1000	Number & Operations in Base Ten	Count within 1000. Skip-count by 100s. Add 1, 10 or 100 to a given number 100-900. Subtract 1, 10 or 100 from a given number 100-900. Use a number square to help skip count by 5s.
2	107	Chance 2	Measurement & Data	Identify outcomes of familiar events involving chance. Use everyday chance language: will happen, won't happen, might happen, possible, impossible. Use comparative language: more likely, less likely.
2	108	Odd and Even Numbers	Operations & Algebraic Thinking	Determine if a number is odd or even number. Use rules to add odd and even numbers.
2	109	The Calendar	Measurement & Data	Use a calendar to identify the date. Determine the number of days in each month. Sequence months of the year. Countdown to dates using a calendar. Sequence days of the week.
2	110	Take Away by Partitioning	Number & Operations in Base Ten	Solve subtraction problems using the jump strategy. Fluently subtract within 30. Use place value to partition numbers to solve subtraction problems. Solve subtraction word problems. Subtract multiples of ten from a two-digit number.
2	111	Sharing 2	Operations & Algebraic Thinking	Share a collection of objects into two, three, four or six equal groups. Arrange groups into arrays. Use addition to find the total number of objects in arrays. Count groups of objects.
2	112	Area 2	Measurement & Data	Understand that area measures how much a surface covers. Sort objects according to height. Sort objects according to area. Use informal measurement to count area. Compare to identify and order which is larger or smaller.
2	113	Grouping 2	Operations & Algebraic Thinking	Count groups of objects. Recognize grouping as repeated addition. Use a number line to skip count. Write an equation to show the total as a sum of equal addends. Solve word problems by grouping and counting.

Mathseeds Grade 2: Lesson 101–150

GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
2	114	Quarter to and Quarter after	Measurement & Data	Tell time to the quarter-hour. Use language of time: quarter after, quarter past, quarter to. Recognize the position of clock hands when showing quarter to or quarter past. Sequence months of the year. Countdown to dates using a calendar. Sequence days of the week.
2	115	Multiplying Groups	Operations & Algebraic Thinking	Recognize multiplication as repeated addition, groups and arrays. Write an equation using signs: \times , $=$. Use language of multiplication: groups of, multiply. Multiply groups by 1, 2, 3, 4, 5.
2	116	Volume	Measurement & Data	Recognize volume as how much space. Use comparative language: less, more, big, bigger, biggest, small, smaller, smallest. Informally measure volume. Record informal measurements for volume.
2	117	Skip Counting Patterns	Number & Operations in Base Ten	Skip count forward and backward by threes, fives, tens, hundreds.
2	118	Word Problems: + and -	Operations & Algebraic Thinking	Solve addition word problems. Solve subtraction word problems.
2	119	The Rhombus	Geometry	Name rhombuses in the environment. Sort shapes. Name rhombuses in different orientations and sizes. Identify parallel lines. Compose two-dimensional shapes to create a composite shape. Identify properties of 2D and 3D shapes.
2	120	Addition 1	Operations & Algebraic Thinking	Solve addition problems using the jump strategy and skip counting. Fluently subtract within 30. Use place value to partition numbers to solve addition problems. Solve addition word problems. Add multiples of ten to a two-digit number.
2	121	Different Views of 3D Objects	Geometry	Recognize the top, front, side and base of 3D objects. Identify and count the numbers of vertices.
2	122	Comparing Numbers	Number & Operations in Base Ten	Use $<$, $=$, $>$ symbols. Compare pairs of numbers starting with a single-digit and building to 2-digit and 3-digit numbers.
2	123	5 Minute Intervals	Measurement & Data	Understand that there are 60 minutes in an hour, and that there are 5 minute intervals between numbers. Match the time on an analog clock to a digital time shown in 5 minute intervals.
2	124	Subtraction Algorithm	Number & Operations in Base Ten	Use vertical subtraction. Subtract two single-digit numbers with no regrouping and subtract a single-digit number from a double digit number with no regrouping.
2	125	Equivalent Amounts of Money	Measurement & Data	Match amounts with equivalent coins. Use 2 coins, 3 coins and 4 coins.
2	126	Measuring Centimeters	Measurement & Data	Use the centimeter as a formal unit of measure. Measure an object twice using informal units and centimeters, and measure to determine how much longer one item is than another.
2	127	Elapsed Time	Measurement & Data	Calculate how much time has elapsed between 2 specific times to the hour and half hour.
2	128	Addition 2	Number & Operations in Base Ten	Use vertical addition. Add two 2-digit numbers with no regrouping and add 2 three-digit numbers with no regrouping.
2	129	Rounding Numbers	Number & Operations in Base Ten	Use a number line. Identify the 'midpoint' and round numbers within 100 up or down to the nearest ten.
2	130	Word Problems: Multiplication	Operations & Algebraic Thinking	Introduce multiplication word problems that use the strategy of 'creating a picture'.
2	131	Word problems: Working Backward	Operations & Algebraic Thinking	Work backward to solve a word problem. Use addition and subtraction number sentences.
2	132	Fractions	Geometry	Revise halves and fourths, and introduce the term 'eighths'. Identify items that have been cut into equal halves, fourths and eighths.
2	133	Number Patterns 1	Number & Operations in Base Ten	Identify a pattern in order to complete a number pattern: $+2$ pattern, -10 pattern, $+100$ pattern. Presented as word problems.

Mathseeds Grade 2: Lesson 101-150

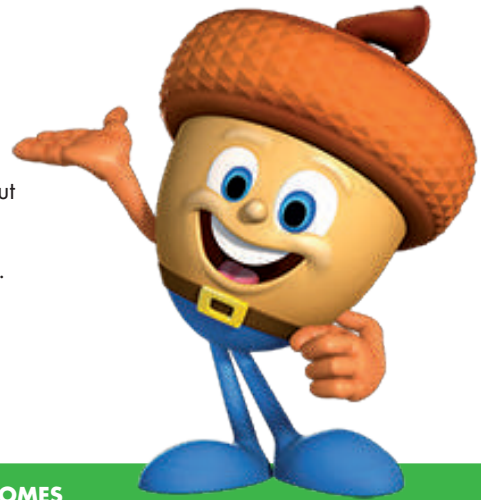
GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
2	134	Subtract 3-digit Numbers	Number & Operations in Base Ten	Practice vertical subtraction. Subtract two 2-digit numbers with no regrouping. Subtract two 3-digit numbers with no regrouping.
2	135	Comparing Mass	Measurement & Data	Use non-standard units to measure the mass of different items. Count the units using tally marks. Present the information as a picture graph and interpret the graph.
2	136	The Division Sign	Operations & Algebraic Thinking	Use the division sign. Share items between groups and divide using a number line.
2	137	Word Problems: Make a Table	Operations & Algebraic Thinking	Solve a word problem by organizing information in a table.
2	138	Finding Fractions of a Collection	Operations & Algebraic Thinking	Investigate a half, third, fourth and eighth of a share. Understand that the denominator tells you how many groups to make.
2	139	2-Step Problem Solving	Operations & Algebraic Thinking	Break a word problem into 2 separate sums. Focus on just addition, addition and subtraction sums, and just subtraction.
2	140	Revision	Operations & Algebraic Thinking	Revise vertical addition and subtraction, grouping and fractions. Identify the properties of 2D shapes and 3D objects. Measure length in cm, match analog and digital times and compare area in square units. Interpret picture graphs.
2	141	Word Problems: Length	Measurement & Data	Solve multi-step word problems involving length using a range of addition and subtraction strategies. These include creating a picture to find the difference, using a number line, mentally counting on by tens and exploring related number facts.
2	142	Fluent Facts within 20	Operations & Algebraic Thinking	Use number bonds to 10 and then to 20 to fluently complete addition equations. Apply knowledge of related addition and subtraction number facts to solve subtraction equations within 20.
2	143	Comparing Lengths using Data	Measurement & Data	Measure different lengths in feet and construct a bar graph to show the results. Interpret the bar graph to answer questions.
2	144	Adding within 1000	Number & Operations in Base Ten	Explore 3 different strategies to add two 3-digit numbers: use base 10 equipment to decompose and compose numbers; use vertical addition; use a number line.
2	145	Quadrilaterals	Geometry	Understand that shapes with 4 sides are called quadrilaterals. Identify quadrilaterals from a range of shapes. Identifying how many sets of parallel lines a shape has and determine if it is a quadrilateral.
2	146	Subtracting within 1000	Number & Operations in Base Ten	Explore 3 different strategies to subtract two 3-digit numbers: use base 10 equipment to decompose and compose numbers; use vertical subtraction; use a number line.
2	147	Word Problems: Money	Measurement & Data	Solve multi-step word problems that involve adding the cost of three items to find the total; determining how much more money is needed to buy an item; adding the cost of three items and giving change from \$5.
2	148	Mentally Adding and Subtracting	Number & Operations in Base Ten	Use strategies to mentally add and subtract 10 or 100 to or from a given number 100-900.
2	149	Area of Rectangles	Measurement & Data	Revision of area. Partition rectangles into square units; count square units to measure area; compare the areas of 2 shapes, create shapes based on a given area.
2	150	Adding and Subtracting 4-digit Numbers	Number & Operations in Base Ten	Add and subtract up to four 2-digit numbers using a variety of strategies including vertical algorithms, number lines and related number facts.



Mathseeds Grade 3: Lesson 151–200

Students learn to count to 10 000, using place value to order numbers. They explore number patterns created by adding and subtracting, including the Fibonacci Sequence. Students begin to learn the times tables, aiming to know all products of two single-digit numbers by the end of grade 3. They also learn about the parts of a fraction and explore how fractions relate to each other.

Students investigate symmetry and area in 2D shapes and in real world contexts. They measure liquids in liters and milliliters, time in minutes, and mass in grams and kilograms. They recognize bills and coins, and find equivalent amounts of money and correct change.



GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
3	151	Counting 1000-5000	Number & Operations in Base Ten	Order numbers on a number line, counting forward and backward in thousands, hundreds and tens. Order numbers from smallest to largest.
3	152	Symmetry	Geometry	Explore vertical and horizontal lines of symmetry. Identify images in the environment that are symmetrical.
3	153	Number Patterns 2	Operations & Algebraic Thinking	Identify addition and subtraction number patterns. Explore the Fibonacci Sequence and follow a rule to create a number pattern. Identify the rule to create a number pattern.
3	154	Liters & Milliliters	Measurement & Data	Introduce the liter and milliliter as units of measure. Understand that 1 L = 1 liter and 1 ml = 1 milliliter, and that 1 L = 1000 ml. Determine if a vessel holds more than, less than or is equal to 1 L. Read increments on measuring jugs in liters and milliliters to determine the amount of liquid there is.
3	155	Multiplication Revision	Operations & Algebraic Thinking	Revise multiplication strategies including repeated addition, grouping items together and using the multiplication sign in a number sentence. Solve multiplication word problems using the 'create a picture' strategy to help visualize the problem.
3	156	Counting 5000-10 000	Number & Operations in Base Ten	Model a number using base 10 equipment and match the number to its name. Place numbers on a number line and count forward and backward in thousands, hundreds and tens. Add +1, +10, +100 to a number.
3	157	Area 3	Measurement & Data	Count squares to measure area. Multiply the number of squares (length) by the number of squares (width). Multiply length x width to find the area in ft ² .
3	158	Times Tables: x2, x4	Operations & Algebraic Thinking	Explore the x2, x4 tables. Identify patterns in a hundred chart and understand that 2 x 2 means two groups of two.
3	159	Money: Equivalent Amounts	Measurement & Data	Count collections of coins and dollar bills to determine the value. Understand that the same amount can be presented in different combinations of currency. Match different currency combinations to a given amount. Find the correct change combinations from a given amount up to \$50.
3	160	Comparing & Ordering Fractions	Number & Operations - Fractions	Understand the role of the top and bottom numbers in a fraction, and use the term 'denominator'. Compare the sizes of fractions, including mixed numbers up to 2. Order simple fractions and mixed numbers on a number line. Fractions used: $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{8}$.
3	161	Partitioning Numbers	Number & Operations in Base Ten	Use place value to partition and rearrange numbers up to 9999. Recognize the value of each digit in 4-digit numbers. Increase the value of numbers by addition, and compare values using mathematical symbols.
3	162	Time to the Minute	Measurement & Data	Recognize that there are 60 minutes in an hour, and tell time to the nearest minute.
3	163	Equivalent Number Sentences	Number & Operations in Base Ten	Explore the connection between addition and subtraction using wholes and parts, related number facts and equivalent number sentences.
3	164	Maps	Geometry	Identify features and places on a simple map using basic coordinates and compass directions.
3	165	Division	Operations & Algebraic Thinking	Revision of grouping and sharing using the division sign and related number facts.
3	166	Odd & Even Numbers	Number & Operations in Base Ten	Identify odd and even numbers using skip counting by twos on number lines and charts. Explore odd and even number patterns.

Mathseeds Grade 3: Lesson 151–200

GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
3	167	Chance 3	Measurement & Data	Investigate different chance experiments. Identify outcomes and possibilities and record results.
3	168	Multiplication Word Problems 2	Number & Operations in Base Ten	Use multiplication facts and related number facts to solve a variety of word problems. Explore the use of different strategies to solve problems.
3	169	Prisms and Pyramids	Geometry	Identify prisms and pyramids and describe their key features.
3	170	Addition 3	Number & Operations in Base Ten	Use vertical addition. Add two 3-digit numbers and introduce regrouping.
3	171	Times Tables 2: x8	Operations & Algebraic Thinking	Explore the 4x and 8x tables. Identify number patterns and investigate the associative property of multiplication.
3	172	Kilograms & Grams	Measurement & Data	Measure and compare the mass of objects using grams and kilograms. Use a range of operations to solve one-step word problems involving mass.
3	173	Mental + - Strategies	Number & Operations in Base Ten	Use the compensation strategy to add and subtract numbers mentally.
3	174	Data 3	Measurement & Data	Collect data and draw a scaled picture graph. Solve one-step and two-step questions by interpreting the information presented in the graph.
3	175	Comparing Fractions of a Collection	Number & Operations - Fractions	Investigate a half, a fourth, a third, a fifth and a tenth of a share. Understand that the denominator tells you how many groups to make. Compare quantities by comparing unit fractions with different denominators.
3	176	Times Tables 3: Mental Facts	Operations & Algebraic Thinking	Explore times tables, including the 3x and 6x tables. Identify number patterns and investigate the distributive property of multiplication.
3	177	Angles	Measurement & Data	Understand that angles are properties of 2D shapes and measures of turn. Identify angles in the environment and compare their sizes.
3	178	Subtraction with Regrouping	Number & Operations in Base Ten	Apply place value to subtract two 3-digit numbers. Use a variety of strategies to demonstrate regrouping when subtracting.
3	179	Comparing Times	Measurement & Data	Compare the duration of an event, recognizing that time can be recorded in minutes, seconds and hours. Understand the difference between a.m. and p.m. time.
3	180	Equivalent Fractions	Number & Operations - Fractions	Recognize equivalent fractions that are the same size or at the same point on a number line. Compare equivalent fractions.
3	181	Number Fact Families 2	Operations & Algebraic Thinking	Solve problems using the commutative property of multiplication. Recognize different number combinations that make number fact families when multiplying and dividing.
3	182	Meters, Centimeters & Millimeters	Measurement & Data	Measure and compare objects using meters, centimeters and millimeters. Recognize which unit of measure is the most appropriate for the situation.
3	183	Solving Word Problems 3	Number & Operations in Base Ten	Solve a variety of addition and subtraction word problems using different strategies.





Mathseeds Grade 3: Lesson 151–200

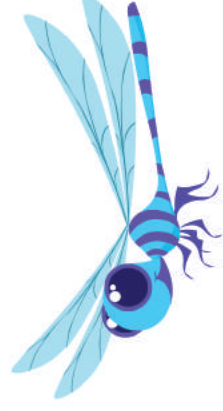
GRADE	LESSON NUMBER	LESSON NAME	DOMAIN STANDARDS	LESSON CONTENT OUTCOMES
3	184	Properties of 2D Shapes	Geometry	Revise the different categories of 2D shapes and group shapes according to their attributes.
3	185	Adding Fractions	Number & Operations - Fractions	Add simple fractions that share the same denominator. Solve simple word problems.
3	186	Multiplication 2	Operations & Algebraic Thinking	Use vertical multiplication. Multiply 1 digit by 1 digit, and 2 digits by 1 digit.
3	187	Creating Graphs	Measurement & Data	Collect data and draw a scaled bar graph. Solve one-step and two-step questions by interpreting the information presented in the graph.
3	188	Problem Solving 2	Number & Operations in Base Ten	Solve word problems that involve the four operations. Interpret the question and determine the appropriate operation to solve the problem.
3	189	Time Word Problems	Measurement & Data	Solve word problems that focus on time. Use addition and subtraction to calculate time intervals in minutes.
3	190	Division 2	Operations & Algebraic Thinking	Recall division facts, and solve problems where there is an unknown quotient.
3	191	Fraction Word Problems	Number & Operations - Fractions	Solve word problems that include finding the fraction of a collection of objects, equivalent fractions and adding fractions.
3	192	Perimeter	Measurement & Data	Find the perimeter of a variety of shapes. Calculate perimeters of shapes where all sides are given, or where there is an unknown length. Investigate shapes that have different areas but the same perimeters.
3	193	Multiplication 4	Operations & Algebraic Thinking	Use a variety of strategies to multiply one-digit numbers by multiples of 10.
3	194	Rounding to the Nearest 100	Number & Operations in Base Ten	Use a number line. Identify the 'midpoint' and round up or down to the nearest hundred.
3	195	Fluent Facts within 1000	Number & Operations in Base Ten	Use a range of strategies to fluently add and subtract numbers up to and within 1000.
3	196	Division Word Problems	Operations & Algebraic Thinking	Solve word problems that involve division. Interpret the questions and determine unknown quotients.
3	197	Whole Number Fractions	Number & Operations - Fractions	Recognize that whole numbers can be written as fractions. Identify whole number fractions on a number line and compare sizes.
3	198	Measurement Data	Measurement & Data	Measure items using inches and record data using a graph. Record measurements in whole numbers, halves and quarters. Interpret the results.
3	199	Fluent $\times \div$ within 100	Operations & Algebraic Thinking	Use a range of strategies to fluently multiply and divide numbers within 100.
3	200	Area Problem Solving	Measurement & Data	Interpret and solve problems involving area. Find the areas of various rectangles using an additive approach.



Number		Standards	Operations		Standards	Patterns		Standards	Measurement		Standards	Geometry		Standards	
1	How many? to 10	K.CC.B.5	1	Picture addition to 5	K.OA.A.5	1	Object patterns Select the next object for a pattern.	MP.7	1	Day and night for an activity.		1	Lines	Recognize straight and curved lines.	K.G.B.4
2	Zero	K.CC.A.1	2	Subitize and add to 5	K.OA.A.5	2	Color patterns Select the next color for a pattern.	MP.7	2	Size Use comparison to measure size.	K.MD.A.2	2	2D sides	Identify the number of sides.	K.G.B.4
3	Count to 10	K.CC.B.4	3	Addition equations to 5	K.OA.A.5	3	Shape patterns Select the next shape for a pattern.	MP.7	3	Size words Describe size.	K.MD.A.2	3	2D corners	Identify the number of corners.	K.G.B.4
4	Numbers to 10	K.CC.A.1	4	Match + number sentences	K.OA.A.5	4	Missing shapes Identify the missing term in a pattern of shapes.	MP.7	4	Seasons Identify seasons for different events.		4	Sort by sides	Sort 2D shapes by number of sides.	K.G.B.4
5	Count back	K.CC.A.1	5	Mental addition to 5	K.OA.A.5	5	Missing objects Identify the missing term in a pattern of objects.	MP.7	5	Length Use comparison to measure length.	K.MD.A.2	5	2D	Match a name to a shape.	K.G.A.2
6	Equal groups to 10	K.CC.C.6	6	Subitize and add to 10	K.OA.A.2	6	Missing colors Identify the missing term in a pattern of colors.	MP.7	6	Length words Describe length.	K.MD.A.2	6	Name 2D	Match a shape to a name.	K.G.A.2
7	Groups to 10	K.CC.C.6	7	Picture addition to 10	K.OA.A.2	7	Identify shape patterns Select shapes arranged in a pattern.	MP.7	7	Weight Use comparison to measure mass.	K.MD.A.2	7	Sort by corners	Sort 2D shapes by corners.	K.G.B.4
8	Compare to 10	K.CC.C.7	8	Grouping		8	Identify object patterns Select objects arranged in a pattern.	MP.7	8	Weight 2 Read a balance scale.	K.MD.A.2	8	2D objects	Recognize 2D shapes in items.	K.G.A.2
9	Sequence to 10	K.CC.A.2	9	Making 10	K.OA.A.4	9	Identify color patterns Select colors arranged in a pattern.	MP.7	9	Height Use comparison to measure height.	K.MD.A.2	9	Beside	Describe position of items in a line.	K.G.A.1
10	Number words to 10	K.CC.A.1	10	Pairs of sums to ten.	K.OA.A.3				10	Height words Describe height.	K.MD.A.2	10	Between	Describe position of items in a line.	K.G.A.1
11	Teen numbers	K.NBT.A.1	11	Addition equations to 10	K.OA.A.1	Data		Standards	11	Container weight Identify more or less capacity.	K.MD.A.2	11	Above & below	Describe relative position of items.	K.G.A.1
12	Place value	K.NBT.A.1	12	Mental addition to 10	K.OA.A.2	1	Count objects	K.MD.B.3	12	Weight words Describe mass.	K.MD.A.2	12	Compose shapes	Identify shapes to form a larger shape.	K.G.B.6
13	Numbers to 20	K.CC.A.1	13	Difference to 5	K.OA.A.5	2	Group items	K.MD.B.3	13	Days of the week Identify the name of each day.		13	In front & behind	Describe relative position of items.	K.G.A.1
14	How many? to 20	K.CC.B.5	14	Difference to 10	K.OA.A.2	3	Count table categories	K.MD.B.3	14	Season order Order the seasons.		14	Far away & near	Describe relative position of items.	K.G.A.1
15	Count to 20	K.CC.B.4	15	Addition equations to 20	K.OA.A.1	4	Find total of a group	K.MD.B.3	15	Capacity Use comparison to measure capacity.	K.MD.A.2	15	3D surfaces	Identify the number of surfaces.	K.G.B.4
16	Sequence to 20	K.CC.A.2	16	Subtraction to 5	K.OA.A.5	5	Total of a table	K.MD.B.3	16	Capacity words Describe capacity.	K.MD.A.2	16	3D corners	Identify the number of corners.	K.G.B.4
17	Number words to 20	K.CC.A.1	17	Subtraction to 10	K.OA.A.1	6	More and less for a table	K.MD.B.3	17	Time Compare the length of time for activities.	K.MD.A.2	17	Sort by surfaces	Sort 3D shapes by surface.	K.G.B.4
18	Groups to 20	K.CC.C.6	18	Take away to 5	K.OA.A.5	7	Graph categories Identify and count groups in a picture graph.	K.MD.B.3	18	Weekdays Identify weekdays.		18	Sort by corners 3D	Sort 3D shapes by corners.	K.G.B.4
19	Equal groups to 20	K.CC.C.6	19	Take away to 10	K.OA.A.2	8	Total of a graph	K.MD.B.3	19	Weekend Identify weekend days.		19	Flat or solid	Describe 2D & 3D shapes.	K.G.A.3
20	Compare to 20	K.CC.C.7	20	Adding groups	K.OA.A.2	9	More and less for a graph	K.MD.B.3	20	Volume Recognize full and empty.	K.MD.A.2	20	2D or 3D	Sort 2D & 3D shapes.	K.G.A.3
21	Numbers to 100	K.CC.A.1	21	Sharing		10	Compare graph categories	K.MD.B.3						Match a name to a shape.	K.G.A.2
22	Count to 100	K.CC.B.4	22	Subtraction sums to 5	K.OA.A.5									Match a shape to a name.	K.G.A.2
23	Sequence to 100	K.CC.A.2	23	Subtraction sums to 10	K.OA.A.1									Recognize 3D shapes in items.	K.G.A.2
24	Ordinal numbers		24	Subtract to 5	K.OA.A.5										
25	Using ordinal numbers		25	Subtract to 10	K.OA.A.5										







Number		Standards
1	Number lines to 20	1.NBT.A.1
2	Numbers to 30	1.NBT.A.1
3	Sequences to 30	1.NBT.A.1
4	Order to 40	1.NBT.A.1
5	Count to 50	1.NBT.A.1
6	Number lines to 50	1.NBT.A.1
7	Compare to 50	1.NBT.B.3
8	Number words	1.NBT.A.1
9	Place value to 50	1.NBT.B.2
10	Partitioning to 50	1.NBT.B.2
11	Count back from 50	1.NBT.A.1
12	Numbers to 70	1.NBT.A.1
13	Order to 120	1.NBT.A.1
14	Reverse order to 50	1.NBT.A.1
15	Before & after	1.NBT.A.1
16	Sequence to 120	1.NBT.A.1
17	Count to 120	1.NBT.A.1
18	True or False	1.NBT.B.2
19	Partitioning to 120	1.NBT.B.2
20	Compare to 120	1.NBT.B.3
21	Number lines to 120	1.NBT.A.1
22	Number words to 120	1.NBT.A.1
23	Reverse order to 120	1.NBT.A.1
24	Place value to 120	1.NBT.A.1

Operations		Standards
1	Add to 10	1.OA.C.6
2	Add 3 numbers	1.OA.A.2
3	Subtract to 10	1.OA.C.6
4	Count on	1.OA.C.5
5	Count back	1.OA.C.5
6	Make 10	1.OA.B.3
7	Number line addition	1.OA.C.5
8	Complete the subtraction	1.OA.D.8
9	Number line subtraction	1.OA.C.5
10	Subtraction sums	1.OA.D.7
11	Addition sums	1.OA.D.7
12	Complete the addition	1.OA.D.8
13	Add 10	1.NBT.C.5
14	Subtract 10	1.NBT.C.5
15	Add within 10	1.NBT.C.4
16	Number fact families	1.OA.B.4
17	Add tens to 2-digits	1.NBT.C.4
18	Make 10 to add	1.NBT.C.4
19	Add tens	1.NBT.C.4
20	Subtract tens	1.NBT.C.6

Patterns and Fractions		Standards
1	Patterns	MP.7
2	Missing terms	MP.7
3	Halves	1.G.A.3
4	Identify patterns	MP.7
5	Fractions of shapes	1.G.A.3
6	Fractions of groups	1.G.A.3
7	Count by 2s	MP.7
8	Count by 5s	MP.7
9	Count by 10s	1.NBT.C.5
10	Counting patterns	MP.7
11	Fraction notation	1.G.A.3
12	Place value	MP.7
13	Identify fractions	1.G.A.3
14	Calculate fractions	1.G.A.3

Data		Standards
1	Table categories	1.MD.C.4
2	Total table	1.MD.C.4
3	Interpret a table	1.MD.C.4
4	Survey question	1.MD.C.4
5	Will or won't	1.MD.C.4
6	Most & least	1.MD.C.4
7	Might	1.MD.C.4
8	Certain or impossible	1.MD.C.4
9	Compare categories	1.MD.C.4
10	Add all items	1.MD.C.4
11	Chance	1.MD.C.4
12	Order categories	1.MD.C.4
13	More or less	1.MD.C.4
14	Graph categories	1.MD.C.4
15	Interpret a graph	1.MD.C.4
16	Graph question	1.MD.C.4

Measurement		Standards
1	0'clock	1.MD.B.3
2	Length	1.MD.A.1
3	Coins	NA
4	Comparing length	1.MD.A.1
5	Sorting coins	NA
6	Coin symbols	NA
7	Identifying coins	NA
8	Half hours	1.MD.B.3
9	Time in words	1.MD.B.3
10	Telling analog time	1.MD.B.3
11	Capacity	NA
12	Ordering coins	NA
13	Measuring length	1.MD.A.2
14	How to measure	1.MD.A.2
15	Telling digital time	1.MD.B.3
16	Duration	NA
17	Comparing capacity	NA
18	Measuring correctly	NA
19	Measuring capacity	NA

Geometry		Standards
1	2D	Match a name to a shape.
2	Corners	Identify the number of corners.
3	Sides	Identify the number of sides.
4	Above & below	Describe relative position of items.
5	Left and right	Describe relative position of items.
6	Name 2D shapes	Match a 2D shape to a name.
7	3D	Match a name to a 3D shape.
8	3D surfaces	Use surfaces to sort 3D shapes.
9	Composing shapes	Identify shapes that can be used to form larger shapes.
10	Defining 2D	Identify defining attributes of 2D shapes.
11	Follow directions	Find the relative position of items in a grid.
12	Turns	Identify left and right when using a map.
13	Composite shapes	Identify new shape formed by two smaller shapes.
14	Rotations	Identify movements on a map.
15	Giving directions	Give directions for a map.
16	Correct directions	Identify turns using arrows.
17	3D corners	Classify 3D shapes using corners.
18	Name 3D	Match a 3D shape to a name.
19	3D edges	Classify 3D shapes using edges.



Number		Standards	Operations		Standards	Patterns and Fractions		Standards	Measurement		Standards	Geometry		Standards		
1	Numbers to 500	Identify the numeral for a 3-digit number.	Count on	Count on with a number line to add.	2.NBT.B.5	1	2s patterns	Identify the missing term in a 2s pattern.	2.NBT.A.2	1	Days	Identify days on a calendar.	1	Flips and slides	Identify transformations of flips and slides.	
2	Order to 500	Identify the correct sequence.	Add to 20	Addition number sentences.	2.OA.B.2	2	5s pattern	Identify the missing term in a 5s pattern.	2.NBT.A.2	2	Dates	Match dates to a marked calendar.	2	Position	Find the relative position of items in a grid.	
3	Number lines to 500	Identify the missing number in the sequence.	Odd or even	Subitize to identify odd and even numbers.	2.OA.C.3	3	10s pattern	Identify the missing term in a 10s pattern.	2.NBT.A.2	3	Months	Identify number of days in a month.	3	3D	Match names to 3D shapes including prisms and pyramids.	
4	Partition to 500	Count the number of hundreds, tens or ones.	Count back	Count back on the number line to subtract.	2.NBT.B.5	4	100s patterns	Identify the missing term in a 100s pattern.	2.NBT.A.2	4	Month order	Sequence months.	4	2D	Match names to 2D shapes.	
5	Numbers to 1000	Match number of hundreds, tens and ones to a numeral.	Subtract to 20	Subtraction number sentences.	2.OA.B.2	5	Equal parts	Identify the number of equal shares in a shape.	2.G.A.2	5	Seasons	Match events to a season.	5	Faces and surfaces	Sort shapes according to faces and surfaces.	
6	Order to 1000	Identify the correct sequence.	Making groups	Divide equally to make groups.	2.OA.C.4	6	Place value patterns	Find the next term in a 1s, 10s or 100s pattern.	2.NBT.A.2	6	Length and area	Identify the longest/shortest or is bigger/smaller.	6	Sides and edges	Sort shapes according to sides and edges.	
7	Count to 500	Count groups of hundreds, tens and ones to find the total.	Add tens	Add numbers on the decade.	2.NBT.B.5	7	Jump by 2s	Find the term in ascending and descending patterns.	2.NBT.A.2	7	Telling time	Match half and quarter past times.	7	Vertices	Name shapes according to vertices.	
8	Place value to 500	Match number word to numeral.	Adding arrays	Use repeated addition to total an array.	2.OA.C.4	8	Jump by 5s	Find the term in ascending and descending patterns.	2.NBT.A.2	8	Capacity and volume	Identify which holds more/less or is biggest/smallest.	8	Grid maps	Find objects on a coordinate map.	
9	Before and after to 500	Select the number one before or after.	Adding groups	Count groups of items to add.	2.OA.C.4	9	Jump by 10s	Find the term in ascending and descending patterns.	2.NBT.A.2	9	Standard length units	Measure length using in or yd.	9	Transitions	Identify flips, slides and turns.	
10	Sequence to 500	Identify the next number in the sequence.	Repeated addition	Match an equation to its array.	2.OA.C.4	10	Jump by 100s	Find the term in ascending and descending patterns.	2.NBT.A.2	10	5 minute intervals	Tell analog time to the nearest five minutes.	10	Quadrilaterals	Sort quadrilaterals from other 2D shapes.	
11	Count to 1000	Count groups of hundreds, tens and ones to find the total.	Equal groups	Select the image to match the number sentence.		11	Wholes	Name the equal parts of a shape.	2.G.A.3	11	Measuring standard lengths	Match items to rulers using in and yd.	11	Turns	Name half and quarter turns of shapes.	
12	Number lines to 1000	Identify the missing number in the sequence.	Groups	Identify equal groups of items.	2.NBT.A.2	12	Fractions	Name the fraction a shape has been divided into.	2.G.A.3	12	Equivalent money	Identify collections of coins and bills with the same value.	12	Patterns	Identify the next turn for patterns.	
13	Sequence to 1000	Identify the next number in the sequence.	Subtract tens	Subtract numbers on the decade.	2.NBT.B.5	13	Describe patterns	Identify as a 1s, 2s, 5s, 10s or 100s pattern.	2.NBT.A.2	13	Estimating standard lengths	Match items to approximate lengths.	13	Directions	Give two-step directions for a map.	
14	Compare to 500	Understand the meaning of $<$, $>$ and $=$.	Number line subtract	Use a number line to solve subtraction.	2.NBT.B.5	14	Fraction words	Use words to identify parts of fractions colored.	2.G.A.3	14	Season order	Sequence seasons.	Data and Chance			Standards
15	Compare to 1000	Understand the meaning of $<$, $>$ and $=$.	Number line add	Use a number line to solve addition.	2.NBT.B.5	15	Fractions of groups	Identify a fraction of a divided group.		15	Difference in standard lengths	Find the difference in between two objects.	1	Sorting data	Identify categories for sorting objects.	2.MD.D.10
16	Partition to 1000	Count the number of hundreds, tens or ones.	Add two-digits	Use a vertical algorithm to solve addition.	2.NBT.B.5	16	Identify fractions	Match notation to colored fraction.	2.G.A.3	16	Seasons & months	Match months to seasons.	2	Chance	Identify the chance of events occurring.	
17	Before and after to 1000	Select the number one before or after.	Subtract two-digits	Use a vertical algorithm to solve subtraction.	2.NBT.B.5	17	Compare fractions	Match larger and smaller fractions.		17	Compare mass	Use two balance scales to find relative mass.	3	Likely or unlikely events occurring.	Identify the likelihood of events occurring.	
18	Place value to 1000	Match number word to numeral.	Add three-digits	Add a 3-digit and 2-digit number with a vertical algorithm.	2.NBT.B.7	18				18	Balance scales	Identify the number of objects to balance the scales.	4	Using tallies	Identify tallies showing data.	2.MD.D.10
19	Expanded form to 500	Select the expanded form of a number.	Arrays	Count arrays.	2.OA.C.4	19				19	Operations in length	Solve addition and subtraction problems using length.	5	Tables	Identify tables showing data.	2.MD.D.10
20	Expanded form to 1000	Select the expanded form of a number.	Linked sums to 100	Relate addition and subtraction to solve problems.	2.NBT.B.5	20				20	a.m. and p.m.	Match digital time to written descriptions.	6	Certain and impossible events occurring.	Identify the possibility of events occurring.	
21	Digit value to 500	Understand the meaning of digits in a number.	Subtract to 1000	Solve subtraction using Base 10 materials.	2.NBT.B.7	21				21	Length units	Match items to rulers using cm and m.	7	Data displays	Sort tables and graphs.	2.MD.D.10
22	Digit value to 1000	Understand the meaning of digits in a number.	Doubles	Double groups of items to find the total.	2.OA.B.2	22				22	Measure lengths	Measure using cm or m.	8	Picture graphs	Identify graphs that represent data.	2.MD.D.10
23	Number words to 500	Match numerals and words.	Add more numbers	Add three 2-digit numbers with a vertical algorithm.	2.NBT.B.6	23				23	Estimate lengths	Match items to rulers using cm or m.	9	Bar graphs	Identify graphs that show tallies.	2.MD.D.9
24	Words to 1000	Match numerals and words.	Add to 1000	Solve addition using Base 10 materials.	2.NBT.B.7	24				24	Length difference	Find the difference in cm between two objects.	10	Count categories	Identify and count categories in graphs.	2.MD.D.9
			Subtract three-digits	Use a subtraction algorithm for 3- and 2-digit numbers.	2.NBT.B.7	25				25			11	Total items	Add to find the total.	2.MD.D.10
			Linked sums to 1000	Relate addition and subtraction to solve problems.	2.NBT.B.7	26				26			12	Line plots	Identify line plots showing data.	2.MD.D.9
			Mental addition	Add one hundred, ten or one to a 3-digit number.	2.NBT.B.8	27				27			13	Interpret data	Count, check and classify data.	2.MD.D.10
			Mental subtraction	Subtract one hundred, ten or one from a 3-digit number.	2.NBT.B.8	28				28			14	Compare categories	Count to find the difference between categories.	2.MD.D.10



Driving Tests Mapped to Standards

Kindergarten

Number Tests	
Counting & Cardinality	
Know number names and the count sequence.	
K.CC.A.1	2, 4, 5, 10, 13, 16, 17, 21
K.CC.A.2	9, 23
Count to tell the number of objects.	
K.CC.B.4	3, 15, 22
K.CC.B.5	1, 14
Compare numbers.	
K.CC.C.6	6, 7, 18, 19
K.CC.C.7	8, 20
Number & Operations in Base Ten	
Work with numbers 11-19 to gain foundations for place value.	
K.NBT.A.1	11, 12

Operations Tests	
Operations & Algebraic Thinking	
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	
K.OA.A.1	11, 15, 17, 23
K.OA.A.2	6, 7, 12, 14, 19, 20, 25
K.OA.A.3	10
K.OA.A.4	9
K.OA.A.5	1, 2, 3, 4, 5, 13, 16, 18, 22, 24

Patterns Tests	
Mathematical Practice	
Describe and compare measurable attributes.	
MP7	1, 2, 3, 4, 5, 6, 7, 8, 9

Measurement Tests	
Measurement & Data	
Using units of measurement	
K.MD.A.2	2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 20

Geometry Tests	
Geometry	
Identify and describe shapes.	
K.G.A.1	9, 10, 11, 13, 14
K.G.A.2	5, 6, 8, 21, 22, 23
K.G.A.3	19, 20
Analyze, compare, create, and compose shapes.	
K.G.B.4	1, 2, 3, 4, 7, 15, 16, 17, 18
K.G.B.6	12

Data Tests	
Measurement & Data	
Classify objects and count the number of objects in each category.	
K.MD.B.3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Grade 1

Number Tests	
Number & Operations in Base Ten	
Extend the counting sequence.	
1.NBT.A.1	1, 2, 3, 4, 5, 6, 8, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24
Understand place value.	
1.NBT.B.2	9, 10, 19
1.NBT.B.3	7, 18

Operations Tests	
Number & Operations in Base Ten	
Use place value understanding and properties of operations to add and subtract.	
1.NBT.C.4	15, 17, 18, 19
1.NBT.C.5	13, 14
1.NBT.C.6	20
Operations & Algebraic Thinking	
Represent and solve problems involving addition and subtraction.	
1.OA.A.2	2
Understand and apply properties of operations and the relationship between addition and subtraction.	
1.OA.B.3	6
1.OA.B.4	16
Add and subtract within 20.	
1.OA.C.5	4, 5, 7, 9
1.OA.C.6	1, 3
Work with addition and subtraction equations.	
1.OA.D.7	10, 11
1.OA.D.8	8, 12

Patterns Tests	
Mathematical Practice	
Look for and make use of structure.	
MP7	1, 2, 4, 7, 8, 10, 12
Geometry	
Reason with shapes and their attributes.	
1.G.A.3	3, 5, 6, 11, 13, 14
Number & Operations in Base Ten	
Use place value understanding and properties of operations to add and subtract.	
1.NBT.C.5	9

Measurement Tests	
Measurement & Data	
Measure lengths indirectly and by iterating length units.	
1.MD.A.1	2, 4
1.MD.A.2	13, 14
Tell and write time.	
1.MD.B.3	1, 8, 9, 10, 15

Geometry Tests	
Geometry	
Reason with shapes and their attributes.	
1.G.A.1	10
1.G.A.2	9, 13

Data Tests	
Measurement & Data	
Represent and interpret data.	
1.MD.C.4	1, 2, 3, 4, 6, 9, 10, 12, 13, 14, 15, 16

Grade 2

Number Tests	
Number & Operations in Base Ten	
Understand place value.	
2.NBT.A.1	4, 8, 16, 18, 19, 20, 21, 22
2.NBT.A.2	2, 3, 6, 7, 9, 10, 11, 12, 13, 17
2.NBT.A.3	1, 5, 23, 24
2.NBT.A.4	14, 15

Operations Tests	
Number & Operations in Base Ten	
Use place value understanding and properties of operations to add and subtract.	
2.NBT.B.5	1, 4, 7, 13, 14, 15, 16, 17, 20
2.NBT.B.6	23
2.NBT.B.7	18, 21, 24, 25, 26
2.NBT.B.8	27, 28
Operations & Algebraic Thinking	
Add and subtract within 20.	
2.OA.B.2	2, 5, 22
Work with equal groups of objects to gain foundations for multiplication.	
2.OA.C.3	3
2.OA.C.4	8, 9, 10, 19

Patterns Tests	
Number & Operations in Base Ten	
Understand place value.	
2.NBT.A.2	1, 2, 3, 4, 6, 7, 8, 9, 10, 13
Geometry	
Reason with shapes and their attributes.	
2.G.A.2	5
2.G.A.3	11, 12, 14, 16

Measurement Tests	
Measurement & Data	
Measure and estimate lengths in standard units.	
2.MD.A.1	9, 11, 21, 22
2.MD.A.3	13, 23
2.MD.A.4	15, 24
Relate addition and subtraction to length.	
2.MD.B.5	19
Work with time and money.	
2.MD.C.7	7, 10, 20
2.MD.C.8	12

Geometry Tests	
Geometry	
Reason with shapes and their attributes.	
2.G.A.1	3, 4, 5, 6, 7, 10

Data Tests	
Measurement & Data	
Represent and interpret data.	
2.MD.D.9	10, 12
2.MD.D.10	1, 4, 5, 7, 8, 9, 11, 13, 14

Foundational Research

Early Numeracy Development

Studies have shown that many young children have an intrinsic number sense and a natural interest in mathematics. Cultivating this interest into a strong skill set is critical for long-term mathematical success and is a primary goal for stakeholders. Research indicates that equipping learners with the necessary skills, strategies, and tools requires substantial investment in systematic, explicit early learning mathematics programs. Within these programs, content must address number sense and computation as these foundational building blocks underpin more complex skill sets in the future. Alongside number sense, a rigorous learning program should address other important competencies including algebra, geometry, measurement, data analysis, and probability in a developmentally appropriate order. To help nurture the natural learning sequence, progress needs to be carefully monitored with timely, constructive feedback for students and parents.

The Key Elements of Mathseeds

Mathseeds is an interactive Web-based mathematics teaching and learning program for children in kindergarten through Grade 3. It has been carefully structured to support individual learning by combining the most effective pedagogical research on number sense, child development, learning styles, motivation, technology, and key curriculum initiatives. In response to current best practice research, Mathseeds utilizes the following instructional design elements to benefit students:

- systematic and explicit teaching of mathematical content, skills, and strategies
- an early and continued focus on number sense and mental computation to lay a strong foundation for more complex mathematical ideas
- a variety of instructional formats designed to suit individual learning styles
- short, focused activities set in meaningful contexts
- practice activities that build automaticity and fluency in number facts and operations
- repetition and revisiting of core ideas that build in complexity over time
- a wide range of motivational elements and fun rewards to engage young learners
- accessible from a wide range of computer devices, bridging the school and home environments

Informing Research for Mathseeds

The Mathseeds white paper includes a structured, in-depth review of contemporary pedagogical research on mathematics learning in today's classrooms. Research has shown that several principles and critical factors underpin the most effective mathematical pedagogy and instruction. Below is a summary of this research:

- Strong number sense is a precursor of future mathematical success. It is to mathematics what phonemic awareness is to reading. To nurture children's growing number sense, teachers need to provide safe learning environments where students can fully engage in activities.
- Several factors underpin the most effective instruction, including motivation and engagement, building on students' thinking, making connections, structured lessons, tools and representations, feedback, and assessment.
- Students learn best when they are provided with short sessions, a quick instructional pace, and time to process new information.
- Not all children learn in the same way, and programs should provide a variety of approaches to cater to these different styles.
- Motivation plays a key role in successful educational programs. Rewards positively reinforce achievement and encourage new learning to occur.
- Effective programs provide students with many opportunities for success and also challenge them to move forward and extend their knowledge and achievements. Effectively assessing and personalizing instruction needs to be an integral part of the program's design.
- Technology needs to provide rich reporting data sets to inform teachers and other key stakeholders. This ensures that technology works alongside the best classroom learning programs.

Mathseeds has been built on best practice research alongside core curriculum initiatives, creating a program that is both educationally rigorous and highly motivating. Its lessons provide an engaging environment for young children. The instructional elements and interactive activities are set in contexts that are fun, meaningful and relevant for young children. Mathseeds has been carefully designed to maximize student learning and to equip students with the strongest foundation possible to achieve lifelong mathematical success.

CONTACT US TODAY!



1 877 661 4898



contact@mathseeds.com



www.mathseeds.com/schools