



Mathletics


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Ohio's Learning Standards

Grades K-8

Mathletics Curriculum Alignment

Kindergarten

| Domain | Cluster | Standard | Description |  Activities |
|--------------------------|---|----------|--|---|
| Counting and Cardinality | Know number names and the count sequence. | K.CC.1 | Count to 100 by ones and by tens. | Count by Tens 1 to 30 Before, After and Between to 20 |
| Counting and Cardinality | Know number names and the count sequence. | K.CC.2 | Count forward within 100 beginning from any given number other than 1. | Counting Forward Going Up Order Numbers to 10 Order Numbers to 20 Counting Up to 20 |
| Counting and Cardinality | Know number names and the count sequence. | K.CC.3 | Write numerals from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). | Matching Numbers to 10 Matching Numbers to 20 Reading Numbers to 30 |
| Counting and Cardinality | Count to tell the number of objects. | K.CC.4 | Understand the relationship between numbers and quantities; connect counting to cardinality using a variety of objects including pennies. a. When counting objects, establish a one-to-one relationship by saying 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. b. Understand that the last number name said tells the number of objects counted and that the number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger. | How Many? Dot Display How Many Dots? Count to 5 |


Kindergarten

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|--|----------|---|--|
| Counting and Cardinality | Count to tell the number of objects. | K.CC.5 | 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. | How Many? How Many Dots? Concept of Zero Count to 5 Dot Display |
| Counting and Cardinality | Count to tell the number of objects. | K.CC.6 | Orally identify (without using inequality symbols) whether the number of objects in one group is greater/more than, less/fewer than, or the same as the number of objects in another group, not to exceed 10 objects in each group. | Picture Graphs: More or Less More, Less or the Same to 10 |
| Counting and Cardinality | Count to tell the number of objects. | K.CC.7 | Compare (without using inequality symbols) two numbers between 0 and 10 when presented as written numerals. | Teacher directed |
| Operations and Algebraic Thinking | Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. | K.OA.1 | Represent addition and subtraction with objects, fingers, mental images, drawings, sounds such as claps, acting out situations, verbal explanations, expressions, or equations. | Model Addition Model Subtraction |
| Operations and Algebraic Thinking | Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. | K.OA.2 | Solve addition and subtraction problems (written or oral), and add and subtract within 10 by using objects or drawings to represent the problem. | Adding to 10 Word Problems Adding to 5 Subtracting From 5 Adding to Ten All about Ten Subtracting from Ten Adding to Make 5 and 10 |
| Operations and Algebraic Thinking | Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. | K.OA.3 | Decompose numbers and record compositions for numbers less than or equal to 10 into pairs in more than one way by using objects and, when appropriate, drawings or equations. | Teacher directed |

Kindergarten

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|--|----------|---|--|
| Operations and Algebraic Thinking | Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. | K.OA.4 | For any number from 1 to 9, find the number that makes 10 when added to the given number, and record the answer with a drawing or, when appropriate, an equation. | Adding to Make 5 and 10 |
| Operations and Algebraic Thinking | Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from. | K.OA.5 | Fluently add and subtract within 5. | Adding to 5 Subtracting From 5 |
| Number and Operations in Base Ten | Work with numbers 11–19 to gain foundations for place value. | K.NBT.1 | Compose and decompose numbers from 11 to 19 into a group of ten ones and some further ones by using objects and, when appropriate, drawings or equations; understand that these numbers are composed of a group of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. | Making Teen Numbers Make Numbers Count |
| Measurement and Data | Identify, describe, and compare measurable attributes. | K.MD.1 | Identify and describe measurable attributes (length, weight, and height) of a single object using vocabulary terms such as long/short, heavy/light, or tall/short. | Everyday Length Everyday Mass |
| Measurement and Data | Identify, describe, and compare measurable attributes. | K.MD.2 | Directly compare two objects with a measurable attribute in common to see which object has “more of” or “less of” the attribute, and describe the difference. | Compare Length Which Holds More? Hot or Cold? |
| Measurement and Data | Classify objects and count the number of objects in each category. | K.MD.3 | Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. The number of objects in each category should be less than or equal to ten. Counting and sorting coins should be limited to pennies. | Sort It Same and Different |


Kindergarten

| Domain | Cluster | Standard | Description |  Activities |
|----------|---|----------|---|--|
| Geometry | Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). | K.G.1 | 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> . | Where is it? Left or Right? |
| Geometry | Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). | K.G.2 | Correctly name shapes regardless of their orientations or overall size. | Collect the Shapes Collect Simple Shapes |
| Geometry | Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres). | K.G.3 | Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”). | Teacher directed |
| Geometry | Describe, compare, create, and compose shapes. | K.G.4 | Describe and compare two- or three-dimensional shapes, in different sizes and orientations, using informal language to describe their commonalities, differences, parts, and other attributes. | Count Sides and Corners Relate Shapes and Solids |
| Geometry | Describe, compare, create, and compose shapes. | K.G.5 | Model shapes in the world by building shapes from components and drawing shapes. | Teacher directed |
| Geometry | Describe, compare, create, and compose shapes. | K.G.6 | Combine simple shapes to form larger shapes. | Teacher directed |

Grade 1

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|--|----------|---|--|
| Operations and Algebraic Thinking | Represent and solve problems involving addition and subtraction. | 1.OA.1 | Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart and comparing, with unknowns in all positions. | Add and Subtract Using Graphs Add and Subtract Problems Adding to 10 Word Problems Problems: Add and Subtract Word Problems: Add and Subtract |
| Operations and Algebraic Thinking | Represent and solve problems involving addition and subtraction. | 1.OA.2 | Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20. | Add Three 1-Digit Numbers Add 3 Single Digit Numbers Add 3 Numbers Using Bonds to 10 Add and Subtract Problems |
| Operations and Algebraic Thinking | Understand and apply properties of operations and the relationship between addition and subtraction. | 1.OA.3 | Apply properties of operations as strategies to add and subtract. | Commutative Property of Addition Adding In Any Order Add 3 Numbers Using Bonds to 10 |
| Operations and Algebraic Thinking | Understand and apply properties of operations and the relationship between addition and subtraction. | 1.OA.4 | Understand subtraction as an unknown-addend problem. | Related Facts 1 Missing Numbers |
| Operations and Algebraic Thinking | Add and subtract within 20. | 1.OA.5 | Relate counting to addition and subtraction. | Addition Facts |
| Operations and Algebraic Thinking | Add and subtract within 20. | 1.OA.6 | Add and subtract within 20, demonstrating fluency with various strategies for addition and subtraction within 10. Strategies may include counting on; making ten; decomposing a number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums. | Fact Families: Add and Subtract Adding to Ten Subtracting from Ten All about Twenty Subtracting from 20 Add 3 Numbers Using Bonds to 10 Doubles and Near Doubles |
| Operations and Algebraic Thinking | Work with addition and subtraction equations. | 1.OA.7 | Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. | Balancing Act Balancing Objects Composing Numbers to 10 Composing Additions to 20 Composing Numbers to 20 |

Grade 1

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|---|----------|---|--|
| Operations and Algebraic Thinking | Work with addition and subtraction equations. | 1.OA.8 | Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. | Related Facts 1 Missing Numbers |
| Number and Operations in Base Ten | Extend the counting sequence. | 1.NBT.1 | Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. | Make Big Numbers Count Before, After & Between to 100 Counting Forward Going Up |
| Number and Operations in Base Ten | Understand place value. | 1.NBT.2 | Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: 10 can be thought of as a bundle of ten ones — called a “ten;” the numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones; and the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones). | Place Value 1 Making Teen Numbers Making Numbers Count |
| Number and Operations in Base Ten | Understand place value. | 1.NBT.3 | Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. | Compare Numbers to 20 Compare Numbers to 50 Compare Numbers to 100 Greater or Less to 100 |


Grade 1

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|---|----------|--|---|
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 1.NBT.4 | Add within 100, including adding a two-digit number and a one-digit number and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that when adding two-digit numbers, tens are added to tens; ones are added to ones; and sometimes it is necessary to compose a ten. | Additive Addition Columns that Add Complements to 10, 20, 50 Complements to 50 and 100 |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 1.NBT.5 | Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. | 10 More, 10 Less 1 More, 10 Less |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 1.NBT.6 | Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. | Subtract Tens |
| Measurement and Data | Measure lengths indirectly and by iterating length units. | 1.MD.1 | Order three objects by length; compare the lengths of two objects indirectly by using a third object. | Comparing Length Compare Length 1 Everyday Length |

Grade 1

| Domain | Cluster | Standard | Description |  Activities |
|----------------------|---|----------|--|--|
| Measurement and Data | Measure lengths indirectly and by iterating length units. | 1.MD.2 | Express the length of an object as a whole number of length units by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. | Measuring Length with Blocks |
| Measurement and Data | Work with time and money. | 1.MD.3 | Work with time and money. a. Tell and write time in hours and half-hours using analog and digital clocks. b. Identify pennies and dimes by name and value. | Set Time to the Hour Set Time to the Half Hour |
| Measurement and Data | Represent and interpret data. | 1.MD.4 | Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. | Pictographs Picture Graphs: Who has the Goods? Sorting Data Read Graphs |
| Geometry | Reason with shapes and their attributes. | 1.G.1 | Distinguish between defining attributes; build and draw shapes that possess defining attributes. | Collect Simple Shapes Collect the Shapes Collect More Shapes Count Sides and Corners |
| Geometry | Reason with shapes and their attributes. | 1.G.2 | Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape. | Teacher directed |


Grade 1

| Domain | Cluster | Standard | Description |  Activities |
|----------|--|----------|--|--|
| Geometry | Reason with shapes and their attributes. | 1.G.3 | Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of or four of the shares in real-world contexts. Understand for these examples that decomposing into more equal shares creates smaller shares. | Halves Halves and Quarters |

Grade 2

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|---|----------|--|--|
| Operations and Algebraic Thinking | Represent and solve problems involving addition and subtraction. | 2.OA.1 | Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions. | Bar Model Problems 1 Bar Model Problems 2 |
| Operations and Algebraic Thinking | Add and subtract within 20. | 2.OA.2 | Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers. | Addition Addition Facts Addictive Addition Subtraction Facts to 18 Simple Subtraction Fact Families: Add and Subtract |
| Operations and Algebraic Thinking | Work with equal groups of objects to gain foundations for multiplication. | 2.OA.3 | Determine whether a group of objects (up to 20) has an odd or even number of members; write an equation to express an even number as a sum of two equal addends. | Odd or Even |
| Operations and Algebraic Thinking | Work with equal groups of objects to gain foundations for multiplication. | 2.OA.4 | Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends. | Groups of Two Groups of Three Groups of Four Groups of Five |
| Number and Operations in Base Ten | Understand place value. | 2.NBT.1 | Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens – called a “hundred.” b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). | Model Numbers Understanding Place Value 1 Place Value 2 Place Value Partitioning |

Grade 2

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|---|----------|---|--|
| Number and Operations in Base Ten | Understand place value. | 2.NBT.2 | Count forward and backward within 1,000 by ones, tens, and hundreds starting at any number; skip-count by 5s starting at any multiple of 5. | Count by Fives Count by Tens Count by 2s, 5s and 10s Counting Back Within 20 Counting Backward |
| Number and Operations in Base Ten | Understand place value. | 2.NBT.3 | Read and write numbers to 1,000 using base-ten numerals, number names, expanded form, and equivalent representations. | Place Value 2 Understanding Place Value 1 Place Value Partitioning |
| Number and Operations in Base Ten | Understand place value. | 2.NBT.4 | Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. | Which is Bigger? Which is Smaller? |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 2.NBT.5 | Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. | Complements to 10, 20, 50 Complements to 50 and 100 Adding to 2-digit numbers Decompose Numbers to Subtract |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 2.NBT.6 | Add up to four two-digit numbers using strategies based on place value and properties of operations. | Add Two 2-Digit Numbers Add Two 2-Digit Numbers: Regroup Add 3 Numbers: Bonds to 100 Add 3 Numbers: Bonds to Multiples of 10 Add Three 2-Digit Numbers |

Grade 2

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|---|----------|---|--|
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 2.NBT.7 | Add and subtract within 1,000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; record the strategy with a written numerical method (drawings and, when appropriate, equations) and explain the reasoning used. Understand that in adding or subtracting three-digit numbers, hundreds are added or subtracted from hundreds, tens are added or subtracted from tens, ones are added or subtracted from ones; and sometimes it is necessary to compose or decompose tens or hundreds. | <ul style="list-style-type: none"> Add Two 2-Digit Numbers Add Two 2-Digit Numbers: Regroup Add Three 2-Digit Numbers Add 3-Digit Numbers Add 3-Digit Numbers: Regroup 2-Digit Differences 2-Digit Differences: Regroup 3-Digit Differences 3-Digit Differences with Zeros 3-Digit Differences: 1 Regrouping 3-Digit Differences: 2 Regroupings |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 2.NBT.8 | Mentally add 10 or 100 to a given number 100-900, and mentally subtract 10 or 100 from a given number 100-900. | 10 More, 10 Less |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to add and subtract. | 2.NBT.9 | Explain why addition and subtraction strategies work, using place value and the properties of operations. | Teacher directed |
| Measurement and Data | Measure and estimate lengths in standard units. | 2.MD.1 | Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | <ul style="list-style-type: none"> Measuring Length How Long Is That (Customary)? Measure to the Nearest Half Inch |
| Measurement and Data | Measure and estimate lengths in standard units. | 2.MD.2 | Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. | Teacher directed |
| Measurement and Data | Measure and estimate lengths in standard units. | 2.MD.3 | Estimate lengths using units of inches, feet, centimeters, and meters. | Inches, Feet, Yards |

Grade 2

| Domain | Cluster | Standard | Description |  Activities |
|----------------------|---|----------|--|--|
| Measurement and Data | Measure and estimate lengths in standard units. | 2.MD.4 | Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit. | Teacher directed |
| Measurement and Data | Relate addition and subtraction to length. | 2.MD.5 | Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same whole number units. | Teacher directed |
| Measurement and Data | Relate addition and subtraction to length. | 2.MD.6 | Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2,..., and represent whole number sums and differences within 100 on a number line diagram. | Teacher directed |
| Measurement and Data | Work with time and money. | 2.MD.7 | Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. | Five Minute Times Quarter To and Quarter Past |
| Measurement and Data | Work with time and money. | 2.MD.8 | Solve problems with money. a. Identify nickels and quarters by name and value. b. Find the value of a collection of quarters, dimes, nickels, and pennies. c. Solve word problems by adding and subtracting within 100, dollars with dollars and cents with cents (not using dollars and cents simultaneously) using the \$ and ¢ symbols appropriately (not including decimal notation). | Pennies, Nickels, and Dimes How Much Money? (USD) Money-Totalling (USD) Who's got the Money? Choosing the Fewest Coins (USD) |

Grade 2

| Domain | Cluster | Standard | Description | Activities |
|----------------------|--|----------|--|--|
| Measurement and Data | Represent and interpret data. | 2.MD.9 | Generate measurement data by measuring lengths of several objects to the nearest whole unit or by making repeated measurements of the same object. Show the measurements by creating a line plot, where the horizontal scale is marked off in whole number units. | Teacher directed |
| Measurement and Data | Represent and interpret data. | 2.MD.10 | Organize, represent, and interpret data with up to four categories; complete picture graphs when single-unit scales are provided; complete bar graphs when single-unit scales are provided; solve simple put-together, take-apart, and compare problems in a graph. | Bar Graphs 1 Bar Graphs 2 Picture Graphs: single-unit scale |
| Geometry | Reason with shapes and their attributes. | 2.G.1 | Recognize and identify triangles, quadrilaterals, pentagons, and hexagons based on the number of sides or vertices. Recognize and identify cubes, rectangular prisms, cones, and cylinders. | How Many Faces? How many Edges? How many Corners? Count Sides and Corners Collect Simple Shapes Collect More Shapes Collect the Objects Collect the Objects 1 |
| Geometry | Reason with shapes and their attributes. | 2.G.2 | Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. | Teacher directed |
| Geometry | Reason with shapes and their attributes. | 2.G.3 | Partition circles and rectangles into two, three, or four equal shares; describe the shares using the words <i>halves</i> , <i>thirds</i> , or <i>fourths</i> and <i>quarters</i> , and use the phrases <i>half of</i> , <i>third of</i> , or <i>fourth of</i> and <i>quarter of</i> . Describe the whole as two halves, three thirds, or four fourths in real-world contexts. Recognize that equal shares of identical wholes need not have the same shape. | Shade Fractions Halves Halves and Quarters |


Grade 3

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|---|----------|---|--|
| Operations and Algebraic Thinking | Represent and solve problems involving multiplication and division. | 3.OA.1 | Interpret products of whole numbers. | <ul style="list-style-type: none"> Groups of Two Groups of Three Groups of Four Groups of Five Groups of Six Groups of Seven Groups of Eight Groups of Nine Groups of Ten Multiplication Arrays Arrays 1 Frog Jump Multiplication Model Multiplication to 5 x 5 |
| Operations and Algebraic Thinking | Represent and solve problems involving multiplication and division. | 3.OA.2 | Interpret whole number quotients of whole numbers. | <ul style="list-style-type: none"> Divide Into Equal Groups Dividing Threes Dividing Fours Dividing Fives Dividing Sixes Dividing Sevens Dividing Eights Dividing Nines Dividing Tens Frog Jump Division Share the Treasure |
| Operations and Algebraic Thinking | Represent and solve problems involving multiplication and division. | 3.OA.3 | Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities. | <ul style="list-style-type: none"> Multiplication Problems 1 Fill the Jars Problems: Times and Divide |
| Operations and Algebraic Thinking | Represent and solve problems involving multiplication and division. | 3.OA.4 | Determine the unknown whole number in a multiplication or division equation relating three whole numbers. | <ul style="list-style-type: none"> Related Facts 2 Missing Numbers: \times and \div facts |
| Operations and Algebraic Thinking | Understand properties of multiplication and the relationship between multiplication and division. | 3.OA.5 | Apply properties of operations as strategies to multiply and divide. | <ul style="list-style-type: none"> Multiplication Turn-Abouts Multiplication Properties Fact Families: Multiply and Divide |
| Operations and Algebraic Thinking | Understand properties of multiplication and the relationship between multiplication and division. | 3.OA.6 | Understand division as an unknown-factor problem. | <ul style="list-style-type: none"> Missing Numbers: \times and \div facts |


Grade 3

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|---|----------|--|--|
| Operations and Algebraic Thinking | Multiply and divide within 100. | 3.OA.7 | Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division. Limit to division without remainders. By the end of Grade 3, know from memory all products of two one-digit numbers. | Related Facts 2 Fact Families: Multiply and Divide Times Tables Multiplication Facts |
| Operations and Algebraic Thinking | Solve problems involving the four operations, and identify and explain patterns in arithmetic. | 3.OA.8 | Solve two-step word problems using the four operations. Represent these problems using equations with a letter or a symbol, which stands for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | Word Problems with Letters |
| Operations and Algebraic Thinking | Solve problems involving the four operations, and identify and explain patterns in arithmetic. | 3.OA.9 | Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. | Increasing Patterns Decreasing Patterns Describing Patterns |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used. | 3.NBT.1 | Use place value understanding to round whole numbers to the nearest 10 or 100. | Nearest Ten? Nearest Hundred? |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used. | 3.NBT.2 | Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. | Addition Properties Add Three 2-Digit Numbers: Regroup Add 3-Digit Numbers Add 3-Digit Numbers: Regroup Add Multi-Digit Numbers 1 Strategies for Column Addition Missing Numbers 1 3-Digit Differences 3-Digit Differences with Zeros 3-Digit Differences: 1 Regrouping 3-Digit Differences: 2 Regroupings |


Grade 3

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|---|----------|---|---|
| Number and Operations in Base Ten | Use place value understanding and properties of operations to perform multi-digit arithmetic. A range of strategies and algorithms may be used. | 3.NBT.3 | Multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations. | Multiply Multiples of 10 |
| Number and Operations—Fractions | Develop understanding of fractions as numbers. | 3.NF.1 | Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$. | Halves and Quarters Thirds and Sixths Shade Fractions Model Fractions What Fraction Is Shaded 1 |
| Number and Operations—Fractions | Develop understanding of fractions as numbers. | 3.NF.2 | Understand a fraction as a number on the number line; represent fractions on a number line diagram. <ol style="list-style-type: none"> Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. Represent a fraction a/b (which may be greater than 1) on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line. | Identifying Fractions on a Number Line |

Grade 3

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------------|--|----------|--|--|
| Number and Operations—Fractions | Develop understanding of fractions as numbers. | 3.NF.3 | <p>Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.</p> <ol style="list-style-type: none"> Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions. | Equivalent Fraction Wall 1 Compare Fractions 1a Comparing Fractions 1 |


Grade 3

| Domain | Cluster | Standard | Description |  Activities |
|----------------------|--|----------|--|--|
| Measurement and Data | Solve problems involving money, measurement, and estimation of intervals of time, liquid volumes, and masses of objects. | 3.MD.1 | Work with time and money. a. Tell and write time to the nearest minute. Measure time intervals in minutes (within 90 minutes). Solve real-world problems involving addition and subtraction of time intervals (elapsed time) in minutes. b. Solve word problems by adding and subtracting within 1,000, dollars with dollars and cents with cents (not using dollars and cents simultaneously) using the \$ and ¢ symbol appropriately (not including decimal notation). | What is the Time? Five Minute Times Time Mentals Elapsed Time Count Money (USD) How Much Money? (USD) |
| Measurement and Data | Solve problems involving money, measurement, and estimation of intervals of time, liquid volumes, and masses of objects. | 3.MD.2 | Measure and estimate liquid volumes and masses of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide whole numbers to solve one-step word problems involving masses or volumes that are given in the same units. | Mass Word Problems Cups, Pints, Quarts, Gallons |
| Measurement and Data | Represent and interpret data. | 3.MD.3 | Create scaled picture graphs to represent a data set with several categories. Create scaled bar graphs to represent a data set with several categories. Solve two-step “how many more” and “how many less” problems using information presented in the scaled graphs. | Making Picture Graphs: With Scale Pictographs Bar Graphs 1 Bar Graphs 2 Add and Subtract Using Graphs Picture Graphs: with scale & half symbols |
| Measurement and Data | Represent and interpret data. | 3.MD.4 | Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by creating a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. | Measure to the Nearest Half Inch |


Grade 3

| Domain | Cluster | Standard | Description | Activities |
|----------------------|---|----------|---|--|
| Measurement and Data | Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | 3.MD.5 | <p>Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.</p> <p>b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.</p> | Teacher directed |
| Measurement and Data | Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | 3.MD.6 | Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). | <p>Area of Shapes</p> <p>Calculate Area of Shapes (inches, feet, yards)</p> <p>Biggest Shape</p> |


Grade 3

| Domain | Cluster | Standard | Description |  Activities |
|----------------------|---|----------|--|---|
| Measurement and Data | Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | 3.MD.7 | <p>Relate area to the operations of multiplication and addition.</p> <ol style="list-style-type: none"> Find the area of a rectangle with whole number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real-world and mathematical problems, and represent whole number products as rectangular areas in mathematical reasoning. Use tiling to show in a concrete case that the area of a rectangle with whole number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$ (represent the distributive property with visual models including an area model). Recognize area as additive. Find the area of figures composed of rectangles by decomposing into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems. | <p>Area of Squares and Rectangles</p> <p>Calculate Area of Squares and Rectangles</p> <p>Area: Compound Figures</p> |

Grade 3

| Domain | Cluster | Standard | Description |  Activities |
|----------------------|---|----------|--|--|
| Measurement and Data | Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. | 3.MD.8 | Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters. | Perimeter Perimeter: Squares and Rectangles Perimeter Detectives 1 Perimeter of Shapes |
| Geometry | Reason with shapes and their attributes | 3.G.1 | Draw and describe triangles, quadrilaterals (rhombuses, rectangles, and squares), and polygons (up to 8 sides) based on the number of sides and the presence or absence of square corners (right angles). | Shapes Collect the Shapes 1 Collect the Shapes 2 Collect More Shapes Collect the Polygons Count Sides and Corners |
| Geometry | Reason with shapes and their attributes | 3.G.2 | Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. | Shade Fractions |

Grade 4

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|---|----------|---|--|
| Operations and Algebraic Thinking | Use the four operations with whole numbers to solve problems. | 4.OA.1 | Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. | Teacher directed |
| Operations and Algebraic Thinking | Use the four operations with whole numbers to solve problems. | 4.OA.2 | Multiply or divide to solve word problems involving multiplicative comparison. | Multiplication Problems 1 |
| Operations and Algebraic Thinking | Use the four operations with whole numbers to solve problems. | 4.OA.3 | Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. | Multiply and Divide Problems 1 Problems: Multiply and Divide Word Problems with Letters |
| Operations and Algebraic Thinking | Gain familiarity with factors and multiples. | 4.OA.4 | Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite. | Multiples Factors Find the Factor Prime or Composite? |
| Operations and Algebraic Thinking | Generate and analyze patterns. | 4.OA.5 | Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. | Increasing Patterns Decreasing Patterns Describing Patterns |
| Number and Operations in Base Ten | Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000. | 4.NBT.1 | Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right by applying concepts of place value, multiplication, or division. | Place Value 1 ($\times 10$ and $\div 10$) Place Value 2 ($\times 10$ and $\div 10$) |


Grade 4

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|--|----------|---|---|
| Number and Operations in Base Ten | Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000. | 4.NBT.2 | Read and write multi-digit whole numbers using standard form, word form, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. | Place Value 3 Numbers from Words to Digits 1 Numbers from Words to Digits 2 Place Value to Millions Expanded Notation Expanding Numbers Understanding Place Value 2 Understanding Place Value 3 Greater Than or Less Than? Greater Than or Less Than 1 |
| Number and Operations in Base Ten | Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000. | 4.NBT.3 | Use place value understanding to round multi-digit whole numbers to any place through 1,000,000. | Rounding Numbers Nearest Thousand? |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers less than or equal to 1,000,000. | 4.NBT.4 | Fluently add and subtract multi-digit whole numbers using a standard algorithm. | Add Multi-Digit Numbers 1 Add Multi-Digit Numbers 2 Adding Colossal Columns Subtracting Colossal Columns 2-Digit Differences: Regroup 3-Digit Differences with Zeros 3-Digit Differences: 2 Regroupings |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers less than or equal to 1,000,000. | 4.NBT.5 | Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | Multiply 2 Digits Area Model Contracted Multiplication Double and Halve to Multiply |
| Number and Operations in Base Ten | Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers less than or equal to 1,000,000. | 4.NBT.6 | Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | Remainders by Arrays Remainders by Tables Divide: 1-Digit Divisor 1 Divide: 1-Digit Divisor 2 Divide: 1-Digit Divisor, Remainder |

Grade 4

| Domain | Cluster | Standard | Description | Activities |
|---------------------------------|--|----------|--|--|
| Number and Operations—Fractions | Extend understanding of fraction equivalence and ordering limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.1 | Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. | Equivalent Fraction Wall 1 Equivalent Fraction Wall 2 The Equivalent Fraction Selecting Equivalent Fractions Equivalent Fractions on a Number Line 1 |
| Number and Operations—Fractions | Extend understanding of fraction equivalence and ordering limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.2 | Compare two fractions with different numerators and different denominators. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions. | Compare Fractions 1b Comparing Fractions 1 |
| Number and Operations—Fractions | Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.3 | Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions. c. Add and subtract mixed numbers with like denominators. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. | Add Like Fractions Subtract Like Fractions Add Subtract Fractions 1 Add Like Mixed Numbers Subtract Like Mixed Numbers |

Grade 4

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------------|--|----------|--|--|
| Number and Operations—Fractions | Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.4 | Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. <ol style="list-style-type: none"> Understand a fraction a/b as a multiple of $1/b$. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. Solve word problems involving multiplication of a fraction by a whole number. | Model Fractions to Multiply Multiply Fraction by Whole Number |
| Number and Operations—Fractions | Understand decimal notation for fractions, and compare decimal fractions limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.5 | Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. | Teacher directed |
| Number and Operations—Fractions | Understand decimal notation for fractions, and compare decimal fractions limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.6 | Use decimal notation for fractions with denominators 10 or 100. | Decimals from Words to Digits 1 |
| Number and Operations—Fractions | Understand decimal notation for fractions, and compare decimal fractions limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. | 4.NF.7 | Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions. | Decimals on the Number Line Comparing Decimals 1 Decimal Order 1 |


Grade 4

| Domain | Cluster | Standard | Description | Activities |
|----------------------|---|----------|--|--|
| Measurement and Data | Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. | 4.MD.1 | Know relative sizes of the metric measurement units within one system of units. Metric units include kilometer, meter, centimeter, and millimeter; kilogram and gram; and liter and milliliter. Express a larger measurement unit in terms of a smaller unit. Record measurement conversions in a two-column table. | Centimeters and Millimeters Converting cm and mm Meters and Kilometers Milliliters and Liters Grams and Kilograms Conversion |
| Measurement and Data | Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. | 4.MD.2 | Solve real-world problems involving money, time, and metric measurement. <ol style="list-style-type: none"> Using models, add and subtract money and express the answer in decimal notation. Using number line diagrams, clocks, or other models, add and subtract intervals of time in hours and minutes. Add, subtract, and multiply whole numbers to solve metric measurement problems involving distances, liquid volumes, and masses of objects. | Making Change (USD) Using Timetables Time Conversions: Whole Numbers 1 Mass Word Problems |
| Measurement and Data | Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. | 4.MD.3 | Develop efficient strategies to determine the area and perimeter of rectangles in real-world situations and mathematical problems. | Perimeter: Squares and Rectangles Perimeter Detectives 1 Area: Squares and Rectangles |
| Measurement and Data | Represent and interpret data. | 4.MD.4 | Display and interpret data in graphs (picture graphs, bar graphs, and line plots) to solve problems using numbers and operations for this grade. | Line Plots |

Grade 4

| Domain | Cluster | Standard | Description | Activities |
|----------------------|--|----------|---|---|
| Measurement and Data | Geometric measurement: understand concepts of angle and measure angles. | 4.MD.5 | <p>Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.</p> <p>a. Understand an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles.</p> <p>b. Understand an angle that turns through n one-degree angles is said to have an angle measure of n degrees.</p> | Comparing Angles Equal Angles |
| Measurement and Data | Geometric measurement: understand concepts of angle and measure angles. | 4.MD.6 | Measure angles in whole number degrees using a protractor. Sketch angles of specified measure. | Estimating Angles Measuring Angles |
| Measurement and Data | Geometric measurement: understand concepts of angle and measure angles. | 4.MD.7 | Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. | Angles of Revolution: Unknown Values |
| Geometry | Draw and identify lines and angles, and classify shapes by properties of their lines and angles. | 4.G.1 | Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. | What Line am I? Right Angle Relation Triangles: Acute, Right, Obtuse What Type of Angle? |


Grade 4

| Domain | Cluster | Standard | Description |  Activities |
|----------|--|----------|--|--|
| Geometry | Draw and identify lines and angles, and classify shapes by properties of their lines and angles. | 4.G.2 | Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. | Shapes Collect the Shapes 2 |

Grade 5

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|--|----------|---|---|
| Operations and Algebraic Thinking | Write and interpret numerical expressions. | 5.OA.1 | Use parentheses in numerical expressions, and evaluate expressions with this symbol. | Order of Operations 1 (PEDMAS) Operations Order 1 (PEDMAS) |
| Operations and Algebraic Thinking | Write and interpret numerical expressions. | 5.OA.2 | Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. | Teacher directed |
| Operations and Algebraic Thinking | Analyze patterns and relationships. | 5.OA.3 | Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. | Table of Values Coordinate Graphs: 1st Quadrant |
| Number and Operations in Base Ten | Understand the place value system. | 5.NBT.1 | Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. | Place Value 1 (x10 and \div 10) Place Value 2 (x10 and \div 10) |
| Number and Operations in Base Ten | Understand the place value system. | 5.NBT.2 | Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10. | Multiplying by 10, 100, 1000 Dividing by 10, 100, 1000 Multiply Decimals and Powers of 10 Divide by Powers of 10 |
| Number and Operations in Base Ten | Understand the place value system. | 5.NBT.3 | Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form. b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. | Decimals from Words to Digits 1 Decimals from Words to Digits 2 Place Value to Millions Place Value to Billions Decimal Place Value Decimal Order 1 Decimal Order 2 |


Grade 5

| Domain | Cluster | Standard | Description |  Activities |
|-----------------------------------|--|----------|---|---|
| Number and Operations in Base Ten | Understand the place value system. | 5.NBT.4 | Use place value understanding to round decimals to any place, millions through hundredths. | Rounding Numbers Nearest Thousand? Rounding Decimals 1 |
| Number and Operations in Base Ten | Perform operations with multi-digit whole numbers and with decimals to hundredths. | 5.NBT.5 | Fluently multiply multi-digit whole numbers using a standard algorithm. | Multiply: 2-Digit Number, Regroup Long Multiplication |
| Number and Operations in Base Ten | Perform operations with multi-digit whole numbers and with decimals to hundredths. | 5.NBT.6 | Find whole number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | Divide: 2-Digit Divisor, Remainder Long Division Mental Methods Division 2 Mental Methods Division 3 |

Grade 5

| Domain | Cluster | Standard | Description | Activities |
|-----------------------------------|--|----------|--|---|
| Number and Operations in Base Ten | Perform operations with multi-digit whole numbers and with decimals to hundredths. | 5.NBT.7 | <p>Solve real-world problems by adding, subtracting, multiplying, and dividing decimals using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction, or multiplication and division; relate the strategy to a written method and explain the reasoning used.</p> <ol style="list-style-type: none"> Add and subtract decimals, including decimals with whole numbers, (whole numbers through the hundreds place and decimals through the hundredths place). Multiply whole numbers by decimals (whole numbers through the hundreds place and decimals through the hundredths place). Divide whole numbers by decimals and decimals by whole numbers (whole numbers through the tens place and decimals less than one through the hundredths place using numbers whose division can be readily modeled). | <p>Add Decimals 1 Subtract Decimals 1 Multiply Decimals 1 Multiply Decimals: Area Model Divide Decimal by Whole Number Money Problems: Four Operations</p> |
| Number and Operations—Fractions | Use equivalent fractions as a strategy to add and subtract fractions. | 5.NF.1 | <p>Add and subtract fractions with unlike denominators (including mixed numbers and fractions greater than 1) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.</p> | <p>Add Unlike Fractions Add Unlike Mixed Numbers Subtract Unlike Fractions Subtract Unlike Mixed Numbers</p> |


Grade 5

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------------|---|----------|---|--|
| Number and Operations—Fractions | Use equivalent fractions as a strategy to add and subtract fractions. | 5.NF.2 | Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. | Fraction Word Problems |
| Number and Operations—Fractions | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | 5.NF.3 | Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers. | Partition into Equal Parts |
| Number and Operations—Fractions | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | 5.NF.4 | Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. <ol style="list-style-type: none"> Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts, equivalently, as the result of a sequence of operations $a \times q \div b$. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. | Model Fractions to Multiply Multiply Fraction by Whole Number Multiply: Whole Number and Fraction Multiply Fraction by Fraction Multiply Two Fractions 1 |

Grade 5

| Domain | Cluster | Standard | Description | Activities |
|---------------------------------|---|----------|---|------------------------|
| Number and Operations—Fractions | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | 5.NF.5 | <p>Interpret multiplication as scaling (resizing).</p> <p>a. Compare the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.</p> <p>b. Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a) / (n \times b)$ to the effect of multiplying a/b by 1.</p> | Teacher directed |
| Number and Operations—Fractions | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | 5.NF.6 | Solve real-world problems involving multiplication of fractions and mixed numbers. | More Fraction Problems |


Grade 5

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------------|---|----------|---|--|
| Number and Operations—Fractions | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | 5.NF.7 | <p>Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.</p> <ol style="list-style-type: none"> Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. Interpret division of a whole number by a unit fraction, and compute such quotients. Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions. | Divide Fractions Visual Model Divide by a Unit Fraction |
| Measurement and Data | Convert like measurement units within a given measurement system. | 5.MD.1 | <p>Know relative sizes of these U.S. customary measurement units: pounds, ounces, miles, yards, feet, inches, gallons, quarts, pints, cups, fluid ounces, hours, minutes, and seconds. Convert between pounds and ounces; miles and feet; yards, feet, and inches; gallons, quarts, pints, cups, and fluid ounces; hours, minutes, and seconds in solving multi-step, real-world problems.</p> | Ounces and Pounds Inches, Feet, Yards Cups, Pints, Quarts, Gallons Customary Units of Length Customary Units of Weight 1 Customary Units of Weight 2 Customary Units of Capacity Time Conversions: Whole Numbers 1 Time Conversions: Whole Numbers 2 |
| Measurement and Data | Represent and interpret data. | 5.MD.2 | <p>Display and interpret data in graphs (picture graphs, bar graphs, and line plots) to solve problems using numbers and operations for this grade.</p> | Teacher directed |

Grade 5

| Domain | Cluster | Standard | Description | Activities |
|----------------------|---|----------|--|---|
| Measurement and Data | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. | 5.MD.3 | <p>Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <p>a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume.</p> <p>b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.</p> | Volume of Solids and Prisms - 1cm ³ blocks |
| Measurement and Data | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. | 5.MD.4 | <p>Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.</p> | <p>Volume of Solids and Prisms - 1cm³ blocks</p> <p>How many Blocks?</p> |

Grade 5

| Domain | Cluster | Standard | Description |  Activities |
|----------------------|---|----------|---|--|
| Measurement and Data | Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition. | 5.MD.5 | <p>Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.</p> <ol style="list-style-type: none"> Find the volume of a right rectangular prism with whole number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole number products as volumes. Apply the formulas $V = \ell \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems. | <p>Volume: Rectangular Prisms 1 Volume: Rectangular Prisms 2</p> |


Grade 5

| Domain | Cluster | Standard | Description | Activities |
|----------|---|----------|---|---|
| Geometry | Graph points on the coordinate plane to solve real-world and mathematical problems. | 5.G.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond. | Coordinate Graphs: 1st Quadrant |
| Geometry | Graph points on the coordinate plane to solve real-world and mathematical problems. | 5.G.2 | Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. | Coordinate Graphs: 1st Quadrant |
| Geometry | Classify two-dimensional figures into categories based on their properties. | 5.G.3 | Identify and describe commonalities and differences between types of triangles based on angle measures (equiangular, right, acute, and obtuse triangles) and side lengths (isosceles, equilateral, and scalene triangles). | Triangle Tasters Triangle - Tasters |
| Geometry | Classify two-dimensional figures into categories based on their properties. | 5.G.4 | Identify and describe commonalities and differences between types of quadrilaterals based on angle measures, side lengths, and the presence or absence of parallel and perpendicular lines. | Properties of Quadrilaterals Collect More Shapes Collect the Shapes 2 Collect the Polygons |


Grade 6

| Domain | Cluster | Standard | Description | Activities |
|---------------------------------------|---|----------|---|--|
| Ratios and Proportional Relationships | Understand ratio concepts and use ratio reasoning to solve problems. | 6.RP.1 | Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. | Teacher directed |
| Ratios and Proportional Relationships | Understand ratio concepts and use ratio reasoning to solve problems. | 6.RP.2 | Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. | Rates |
| Ratios and Proportional Relationships | Understand ratio concepts and use ratio reasoning to solve problems. | 6.RP.3 | Use ratio and rate reasoning to solve real-world and mathematical problems. a. Make tables of equivalent ratios relating quantities with whole number measurements; find missing values in the tables; and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. c. Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. | Ratio Word Problems Rate Word Problems Ratios Equivalent Ratios Graphing from a Table of Values Graphing from a Table of Values 2 Average Speed Best Buy Mixed decimal, percentage, and fraction conversions Percentage of a Quantity Percentage Word Problems Percentage of an amount using fractions (<100%) Quantities to Percentages (no units) Solve Percent Equations Customary Units of Length Customary Units of Capacity Customary Units of Weight 1 Customary Units of Weight 2 |
| The Number System | Apply and extend previous understandings of multiplication and division to divide fractions by fractions. | 6.NS.1 | Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions. | Divide Fractions by Fractions 1 Dividing Fractions |
| The Number System | Compute fluently with multi-digit numbers and find common factors and multiples. | 6.NS.2 | Fluently divide multi-digit numbers using a standard algorithm. | Divide: 1-Digit Divisor 2 Divide: 2-Digit Divisor, Remainder Long Division |


Grade 6

| Domain | Cluster | Standard | Description |  Activities |
|-------------------|--|----------|---|--|
| The Number System | Compute fluently with multi-digit numbers and find common factors and multiples. | 6.NS.3 | Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation. | <ul style="list-style-type: none"> Adding Decimals Subtracting Decimals Adding and Subtracting Decimals Multiply Decimal by Decimal Divide Decimal by Whole Number Divide Decimal by Decimal |
| The Number System | Compute fluently with multi-digit numbers and find common factors and multiples. | 6.NS.4 | Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. | <ul style="list-style-type: none"> Find the Factor Greatest Common Factor Multiples Least Common Multiple |
| The Number System | Apply and extend previous understandings of numbers to the system of rational numbers. | 6.NS.5 | Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. | Teacher directed |


Grade 6

| Domain | Cluster | Standard | Description |  Activities |
|-------------------|--|----------|--|--|
| The Number System | Apply and extend previous understandings of numbers to the system of rational numbers. | 6.NS.6 | <p>Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <ol style="list-style-type: none"> Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. | Integers on a Number Line Number Plane Ordered Pairs Coordinate Graphs |

Grade 6

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------|--|----------|--|--|
| The Number System | Apply and extend previous understandings of numbers to the system of rational numbers. | 6.NS.7 | <p>Understand ordering and absolute value of rational numbers.</p> <ol style="list-style-type: none"> Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret, and explain statements of order for rational numbers in real-world contexts. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. Distinguish comparisons of absolute value from statements about order. | <p>Ordering Integers (Number Line) Comparing Integers Absolute Value</p> |
| The Number System | Apply and extend previous understandings of numbers to the system of rational numbers. | 6.NS.8 | <p>Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p> | <p>Graphing from a Table of Values Graphing from a Table of Values 2</p> |
| Expressions and Equations | Apply and extend previous understandings of arithmetic to algebraic expressions. | 6.EE.1 | <p>Write and evaluate numerical expressions involving whole number exponents.</p> | <p>Exponents I am Thinking of a Number! Order of Operations 2 (PEDMAS)</p> |


Grade 6

| Domain | Cluster | Standard | Description | Activities |
|---------------------------|--|----------|---|--|
| Expressions and Equations | Apply and extend previous understandings of arithmetic to algebraic expressions. | 6.EE.2 | <p>Write, read, and evaluate expressions in which letters stand for numbers.</p> <ol style="list-style-type: none"> Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, using the algebraic order of operations when there are no parentheses to specify a particular order. |  Activities Writing Algebraic Expressions Simple Substitution 1 |
| Expressions and Equations | Apply and extend previous understandings of arithmetic to algebraic expressions. | 6.EE.3 | Apply the properties of operations to generate equivalent expressions. | Multiplication Properties |
| Expressions and Equations | Apply and extend previous understandings of arithmetic to algebraic expressions. | 6.EE.4 | Identify when two expressions are equivalent. | Teacher directed |
| Expressions and Equations | Reason about and solve one-variable equations and inequalities. | 6.EE.5 | Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. | Teacher directed |

Grade 6

| Domain | Cluster | Standard | Description | Activities |
|---------------------------|---|----------|--|--|
| Expressions and Equations | Reason about and solve one-variable equations and inequalities. | 6.EE.6 | Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. | Writing Algebraic Expressions |
| Expressions and Equations | Reason about and solve one-variable equations and inequalities. | 6.EE.7 | Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q , and x are all nonnegative rational numbers. | Write an Equation: Word Problems |
| Expressions and Equations | Reason about and solve one-variable equations and inequalities. | 6.EE.8 | Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. | Teacher directed |
| Expressions and Equations | Represent and analyze quantitative relationships between dependent and independent variables. | 6.EE.9 | Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. | Teacher directed |
| Geometry | Solve real-world and mathematical problems involving area, surface area, and volume. | 6.G.1 | Through composition into rectangles or decomposition into triangles, find the area of right triangles, other triangles, special quadrilaterals, and polygons; apply these techniques in the context of solving real-world and mathematical problems. | Area: Right Triangles Area: Triangles Area: Squares and Rectangles Area: Parallelograms Area: Quadrilaterals Area: Compound Figures |

Grade 6

| Domain | Cluster | Standard | Description | Activities |
|----------|--|----------|--|--|
| Geometry | Solve real-world and mathematical problems involving area, surface area, and volume. | 6.G.2 | Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = \ell \cdot w \cdot h$ and $V = B \cdot h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. |  Activities Volume: Rectangular Prisms 1 Volume: Rectangular Prisms 2 |
| Geometry | Solve real-world and mathematical problems involving area, surface area, and volume. | 6.G.3 | Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. | Teacher directed |
| Geometry | Solve real-world and mathematical problems involving area, surface area, and volume. | 6.G.4 | Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. | Nets Surface Area: Rectangular Prisms Surface Area: Triangular Prisms |


Grade 6

| Domain | Cluster | Standard | Description | Activities |
|----------------------------|---|----------|--|--|
| Statistics and Probability | Develop understanding of statistical problem solving. | 6.SP.1 | <p>Develop statistical reasoning by using the GAISE model:</p> <ol style="list-style-type: none"> Formulate Questions: Recognize and formulate a statistical question as one that anticipates variability and can be answered with quantitative data. Collect Data: Design and use a plan to collect appropriate data to answer a statistical question. Analyze Data: Select appropriate graphical methods and numerical measures to analyze data by displaying variability within a group, comparing individual to individual, and comparing individual to group. Interpret Results: Draw logical conclusions from the data based on the original question. | Teacher directed |
| Statistics and Probability | Develop understanding of statistical problem solving. | 6.SP.2 | Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. | Teacher directed |
| Statistics and Probability | Develop understanding of statistical problem solving. | 6.SP.3 | Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. | Teacher directed |
| Statistics and Probability | Summarize and describe distributions. | 6.SP.4 | Display numerical data in plots on a number line, including dot plots (line plots), histograms, and box plots. | Line Plots Dot Plots Histograms Box-and-Whisker Plots 1 |


Grade 6

| Domain | Cluster | Standard | Description | Activities |
|----------------------------|---------------------------------------|----------|--|---|
| Statistics and Probability | Summarize and describe distributions. | 6.SP.5 | <p>Summarize numerical data sets in relation to their context.</p> <ol style="list-style-type: none"> Report the number of observations. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement. Find the quantitative measures of center (median and/or mean) for a numerical data set and recognize that this value summarizes the data set with a single number. Interpret mean as an equal or fair share. Find measures of variability (range and interquartile range) as well as informally describe the shape and the presence of clusters, gaps, peaks, and outliers in a distribution. Choose the measures of center and variability, based on the shape of the data distribution and the context in which the data were gathered. | <p>Mean Median Mode Data Extremes and Range Calculating Interquartile Range</p> |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------------------|--|----------|---|---|
| Ratios and Proportional Relationships | Analyze proportional relationships and use them to solve real-world and mathematical problems. | 7.RP.1 | Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. | Rates Proportional Relationships Average Speed Time Taken Rate Word Problems |
| Ratios and Proportional Relationships | Analyze proportional relationships and use them to solve real-world and mathematical problems. | 7.RP.2 | Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. d. Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate. | $y=ax$ Conversion Graphs |
| Ratios and Proportional Relationships | Analyze proportional relationships and use them to solve real-world and mathematical problems. | 7.RP.3 | Use proportional relationships to solve multistep ratio and percent problems. | Best Buy Commission Percentage Change: Increase and Decrease Percent Increase and Decrease Percentage Error Successive Discounts Profit and Loss Simple Interest Percentage Word Problems |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|-------------------|--|----------|---|--|
| The Number System | Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. | 7.NS.1 | <p>Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.</p> <ol style="list-style-type: none"> Describe situations in which opposite quantities combine to make 0. Understand $p + q$ as the number located a distance q from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. Apply properties of operations as strategies to add and subtract rational numbers. | <p>Add Integers Adding Integers: Positive, Negative or Zero Subtract Integers Integers: Add and Subtract Negative or Positive? More with Integers Add Unlike Fractions Add Mixed Numbers: Signs Can Differ Subtract Unlike Fractions Subtract Mixed Numbers: Signs Differ Subtract Negative Mixed Numbers</p> |

Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|-------------------|--|----------|--|---|
| The Number System | Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. | 7.NS.2 | <p>Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.</p> <p>a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p> <p>b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.</p> <p>c. Apply properties of operations as strategies to multiply and divide rational numbers.</p> <p>d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p> | Integers: Multiplication and Division Multiplying and Dividing Integers Multiply Two Fractions 2 Divide Fractions by Fractions 2 Divide Mixed Numbers with Signs Fractions to Decimals 2 |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------|--|----------|--|--|
| The Number System | Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. | 7.NS.3 | Solve real-world and mathematical problems involving the four operations with rational numbers. Computations with rational numbers extend the rules for manipulating fractions to complex fractions. | More Fraction Problems Integers: Order of Operations (PEMDAS) Integers: Operations Order |
| Expressions and Equations | Use properties of operations to generate equivalent expressions. | 7.EE.1 | Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. | Using the Distributive Property Factoring |
| Expressions and Equations | Use properties of operations to generate equivalent expressions. | 7.EE.2 | In a problem context, understand that rewriting an expression in an equivalent form can reveal and explain properties of the quantities represented by the expression and can reveal how those quantities are related. | Teacher directed |
| Expressions and Equations | Solve real-life and mathematical problems using numerical and algebraic expressions and equations. | 7.EE.3 | Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. | Successive Discounts Profit and Loss |


Grade 7

| Domain | Cluster | Standard | Description | Activities |
|---------------------------|--|----------|---|---|
| Expressions and Equations | Solve real-life and mathematical problems using numerical and algebraic expressions and equations. | 7.EE.4 | <p>Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.</p> <p>a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.</p> <p>b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.</p> | <p>Write an Equation: Word Problems</p> <p>Writing Equations</p> <p>Solve Equations: Add, Subtract 1</p> <p>Solve Equations: Add, Subtract 2</p> <p>Solve Equations: Multiply, Divide 1</p> <p>Solve Equations: Multiply, Divide 2</p> <p>Solve Two-Step Equations</p> <p>Solve Multi-Step Equations</p> <p>Solving Simple Equations</p> <p>Inequalities on a Number Line: Basics</p> <p>Inequalities on a Number Line: Mixed Basics</p> <p>Graphing Inequalities 2</p> <p>Graphing Inequalities on Number Line</p> <p>Solve One-Step Inequalities 1</p> <p>Solve One-Step Inequalities 2</p> |
| Geometry | Draw, construct, and describe geometrical figures and describe the relationships between them. | 7.G.1 | <p>Solve problems involving similar figures with right triangles, other triangles, and special quadrilaterals.</p> <p>a. Compute actual lengths and areas from a scale drawing and reproduce a scale drawing at a different scale.</p> <p>b. Represent proportional relationships within and between similar figures.</p> | <p>Scale Factor</p> <p>Scale Measurement</p> <p>Floor Plans</p> <p>Perimeter, Area, Dimension Change</p> <p>Similar Figures</p> <p>Similar Figures 1</p> <p>Using Similar Triangles</p> |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|----------|---|----------|---|--|
| Geometry | Draw, construct, and describe geometrical figures and describe the relationships between them. | 7.G.2 | <p>Draw (freehand, with ruler and protractor, and with technology) geometric figures with given conditions.</p> <ol style="list-style-type: none"> Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. Focus on constructing quadrilaterals with given conditions noticing types and properties of resulting quadrilaterals and whether it is possible to construct different quadrilaterals using the same conditions. | Teacher directed |
| Geometry | Draw, construct, and describe geometrical figures and describe the relationships between them. | 7.G.3 | Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. | Relate Shapes and Solids |
| Geometry | Solve real-life and mathematical problems involving angle measure, circles, area, surface area, and volume. | 7.G.4 | <p>Work with circles.</p> <ol style="list-style-type: none"> Explore and understand the relationships among the circumference, diameter, area, and radius of a circle. Know and use the formulas for the area and circumference of a circle and use them to solve real-world and mathematical problems. | Calculate Circumference of Circles Area: Circles 1 Area: Circles 2 Area: Annulus |
| Geometry | Solve real-life and mathematical problems involving angle measure, circles, area, surface area, and volume. | 7.G.5 | Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure. | Equal, Complement, or Supplement? Vertically Opposite: Value of x |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|----------------------------|---|----------|---|--|
| Geometry | Solve real-life and mathematical problems involving angle measure, circles, area, surface area, and volume. | 7.G.6 | Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. | Area: Triangles Area: Squares and Rectangles Area: Parallelograms Area: Quadrilaterals Area: Compound Figures Area: Composite Shapes Nets Surface Area: Cuboids Surface Area: Rectangular Prisms Surface Area: Triangular Prisms 1 Volume of Rectangular Prisms 1 Volume of Triangular Prisms Volume: Prisms |
| Statistics and Probability | Use sampling to draw conclusions about a population. | 7.SP.1 | Understand that statistics can be used to gain information about a population by examining a sample of the population. <ol style="list-style-type: none"> Differentiate between a sample and a population. Understand that conclusions and generalizations about a population are valid only if the sample is representative of that population. Develop an informal understanding of bias. | Teacher directed |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|----------------------------|---|----------|---|--|
| Statistics and Probability | Broaden understanding of statistical problem solving. | 7.SP.2 | <p>Broaden statistical reasoning by using the GAISE model:</p> <ol style="list-style-type: none"> Formulate Questions: Recognize and formulate a statistical question as one that anticipates variability and can be answered with quantitative data. Collect Data: Design and use a plan to collect appropriate data to answer a statistical question. Analyze Data: Select appropriate graphical methods and numerical measures to analyze data by displaying variability within a group, comparing individual to individual, and comparing individual to group. Interpret Results: Draw logical conclusions and make generalizations from the data based on the original question. | Teacher directed |
| Statistics and Probability | Summarize and describe distributions representing one population and draw informal comparisons between two populations. | 7.SP.3 | <p>Describe and analyze distributions.</p> <ol style="list-style-type: none"> Summarize quantitative data sets in relation to their context by using mean absolute deviation (MAD), interpreting mean as a balance point. Informally assess the degree of visual overlap of two numerical data distributions with roughly equal variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. | <p>Mean Median Mode Data Extremes and Range</p> |


Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|----------------------------|---|----------|--|--|
| Statistics and Probability | Investigate chance processes and develop, use, and evaluate probability models. | 7.SP.5 | Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event; a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely; and a probability near 1 indicates a likely event. | Chance Dial Probability Scale |
| Statistics and Probability | Investigate chance processes and develop, use, and evaluate probability models. | 7.SP.6 | Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. | Find the Probability Simple Probability Introductory Probability |
| Statistics and Probability | Investigate chance processes and develop, use, and evaluate probability models. | 7.SP.7 | Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. <ol style="list-style-type: none"> Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. | Probability Tables |

Grade 7

| Domain | Cluster | Standard | Description |  Activities |
|----------------------------|---|----------|---|--|
| Statistics and Probability | Investigate chance processes and develop, use, and evaluate probability models. | 7.SP.8 | Find probabilities of compound events using organized lists, tables, tree diagrams, and simulations. <ol style="list-style-type: none"> a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language. c. Design and use a simulation to generate frequencies for compound events. | Counting Principle Counting Techniques 1 Dice and Coins Probability - Replacement Probability - No Replacement |


Grade 8

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------|--|----------|--|--|
| The Number System | Know that there are numbers that are not rational, and approximate them by rational numbers. | 8.NS.1 | Know that real numbers are either rational or irrational. Understand informally that every number has a decimal expansion which is repeating, terminating, or is non-repeating and non-terminating. | Irrational Numbers Fraction to Terminating Decimal Recurring Decimals |
| The Number System | Know that there are numbers that are not rational, and approximate them by rational numbers. | 8.NS.2 | Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions. | Estimating Square Roots |
| Expressions and Equations | Work with radicals and integer exponents. | 8.EE.1 | Understand, explain, and apply the properties of integer exponents to generate equivalent numerical expressions. | Exponent Notation Exponent Notation and Algebra Properties of Exponents Exponent Laws with Brackets The Zero Exponent Negative Exponents Integer Exponents Multiplication with Exponents Simplifying with Exponent Laws 1 Exponent Laws and Algebra Exponent Form to Numbers |
| Expressions and Equations | Work with radicals and integer exponents. | 8.EE.2 | Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational. | Square Roots Square Roots 1 Square and Cube Roots |
| Expressions and Equations | Work with radicals and integer exponents. | 8.EE.3 | Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities and to express how many times as much one is than the other. | Scientific Notation Scientific Notation 1 Scientific Notation 2 Scientific notation to decimal Ordering Scientific Notation |

Grade 8

| Domain | Cluster | Standard | Description | Activities |
|---------------------------|---|----------|--|---|
| Expressions and Equations | Work with radicals and integer exponents. | 8.EE.4 | Perform operations with numbers expressed in scientific notation, including problems where both decimal notation and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. | Teacher directed |
| Expressions and Equations | Understand the connections between proportional relationships, lines, and linear equations. | 8.EE.5 | Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. | $y=ax$ |
| Expressions and Equations | Understand the connections between proportional relationships, lines, and linear equations. | 8.EE.6 | Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b . | Determining a Rule for a Line Gradient Slope of a Line Equation of a Line 1 Which Straight Line? Equation from Point and Gradient Modeling Linear Relationships |


Grade 8

| Domain | Cluster | Standard | Description |  Activities |
|---------------------------|--|----------|---|--|
| Expressions and Equations | Analyze and solve linear equations and pairs of simultaneous linear equations. | 8.EE.7 | <p>Solve linear equations in one variable.</p> <p>a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).</p> <p>b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> | <p>Equations with Grouping Symbols</p> <p>Equations with Fractions</p> <p>Equations with Decimals</p> <p>Equations to Solve Problems</p> <p>Equations: Variables, Both Sides</p> <p>Solving More Equations</p> |
| Expressions and Equations | Analyze and solve linear equations and pairs of simultaneous linear equations. | 8.EE.8 | <p>Analyze and solve pairs of simultaneous linear equations graphically.</p> <p>a. Understand that the solution to a pair of linear equations in two variables corresponds to the point(s) of intersection of their graphs, because the point(s) of intersection satisfy both equations simultaneously.</p> <p>b. Use graphs to find or estimate the solution to a pair of two simultaneous linear equations in two variables. Equations should include all three solution types: one solution, no solution, and infinitely many solutions. Solve simple cases by inspection.</p> <p>c. Solve real-world and mathematical problems leading to pairs of linear equations in two variables.</p> | <p>Solve Systems by Graphing</p> <p>Linear Modelling</p> <p>Simultaneous Equations 1</p> <p>Simultaneous Equations 2</p> <p>Simultaneous Linear Equations</p> |

Grade 8

| Domain | Cluster | Standard | Description |  Activities |
|-----------|--|----------|---|--|
| Functions | Define, evaluate, and compare functions. | 8.F.1 | Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. | Function Rules and Tables Vertical Line Test |
| Functions | Define, evaluate, and compare functions. | 8.F.2 | Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). | Teacher directed |
| Functions | Define, evaluate, and compare functions. | 8.F.3 | Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. | Find the Function Rule |
| Functions | Use functions to model relationships between quantities. | 8.F.4 | Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values. | Teacher directed |
| Functions | Use functions to model relationships between quantities. | 8.F.5 | Describe qualitatively the functional relationship between two quantities by analyzing a graph. Sketch a graph that exhibits the qualitative features of a function that has been described verbally. | Travel Graphs Line Graphs: Interpretation |


Grade 8

| Domain | Cluster | Standard | Description |  Activities |
|----------|---|----------|---|---|
| Geometry | Understand congruence and similarity using physical models, transparencies, or geometry software. | 8.G.1 | Verify experimentally the properties of rotations, reflections, and translations (include examples both with and without coordinates). a. Lines are taken to lines, and line segments are taken to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines. | Flip, Slide, Turn Transformations Transformations: Coordinate Plane Rotations: Coordinate Plane |
| Geometry | Understand congruence and similarity using physical models, transparencies, or geometry software. | 8.G.2 | Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. | Congruent Figures (Dot Grid) Congruent Figures (Grid) |
| Geometry | Understand congruence and similarity using physical models, transparencies, or geometry software. | 8.G.3 | Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. | Flip, Slide, Turn Transformations Transformations: Coordinate Plane Rotations: Coordinate Plane Scale Factor |
| Geometry | Understand congruence and similarity using physical models, transparencies, or geometry software. | 8.G.4 | Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. | Similar Figures 1 |

Grade 8

| Domain | Cluster | Standard | Description | Activities |
|----------------------------|---|----------|--|--|
| Geometry | Understand congruence and similarity using physical models, transparencies, or geometry software. | 8.G.5 | Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. | <ul style="list-style-type: none"> Angles and Parallel Lines Angles on Parallel Lines Introduction to Angles on Parallel Lines 1 Introduction to Angles on Parallel Lines 3 Parallel Lines Vertically Opposite Angles: Unknown Values Vertically Opposite: Value of x Using Similar Triangles Similar Triangles Angle Measures in a Triangle Angle Sum of a Triangle Exterior Angles of a Triangle |
| Geometry | Understand and apply the Pythagorean Theorem. | 8.G.6 | Analyze and justify an informal proof of the Pythagorean Theorem and its converse. | Pythagorean Triads |
| Geometry | Understand and apply the Pythagorean Theorem. | 8.G.7 | Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. | <ul style="list-style-type: none"> Pythagorean Theorem Pythagoras: Find a Short Side (integers only) Pythagoras: Find a Short Side (decimal values) Pythagoras: Find a Short Side (rounding needed) Pythagoras' Theorem Find Slant Height |
| Geometry | Understand and apply the Pythagorean Theorem. | 8.G.8 | Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. | Distance Between Two Points |
| Geometry | Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. | 8.G.9 | Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres. | <ul style="list-style-type: none"> Volume: Cylinders Volume: Cones Volume: Spheres Volume: Composite Figures |
| Statistics and Probability | Investigate patterns of association in bivariate data. | 8.SP.1 | Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering; outliers; positive, negative, or no association; and linear association and nonlinear association. | <ul style="list-style-type: none"> Data Analysis: Scatter Plots Scatter Plots |

Grade 8

| Domain | Cluster | Standard | Description |  Activities |
|----------------------------|--|----------|---|--|
| Statistics and Probability | Investigate patterns of association in bivariate data. | 8.SP.2 | Understand that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. | Teacher directed |
| Statistics and Probability | Investigate patterns of association in bivariate data. | 8.SP.3 | Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. | Teacher directed |
| Statistics and Probability | Investigate patterns of association in bivariate data. | 8.SP.4 | Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. | Probability Tables Relative Frequency Two-way Table Probability |

Mathletics



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