

Mathematics 6+

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Skills and Concepts to Develop (50% Probability*) < 161	Skills and Concepts to Introduce (27% Probability*) 161 - 170
Solve Problems and Use Equations & Inequalities • Uses models to construct whole number addition facts with addends through 10	Solve Problems and Use Equations & Inequalities • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves basic-facts open sentences - addition and subtraction
Use Functions to Model Relationships	Use Functions to Model Relationships
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> + addition, = is equal to, - subtraction, variable

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) < 161	Skills and Concepts to Develop (50% Probability*) 161 - 170	Skills and Concepts to Introduce (27% Probability*) 171 - 180
Expressions & Properties of Operations	Expressions & Properties of Operations	Expressions & Properties of Operations
	<ul style="list-style-type: none"> • Uses models to construct subtraction facts with differences through 10 (whole numbers) 	<ul style="list-style-type: none"> • Writes equivalent forms of whole number expressions (e.g., $15 + 5 = 10 + 10$) • Adds 1-digit numbers with sums to 18 (with parentheses)
Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities
<ul style="list-style-type: none"> • Uses models to construct whole number addition facts with addends through 10 	<ul style="list-style-type: none"> • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves basic-facts open sentences - addition and subtraction 	<ul style="list-style-type: none"> • Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Solves problems using tally charts • Reads a chart or table - comparisons • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves real-world whole number addition problems with sums to 20 (start unknown) • Solves real-world whole number addition problems with sums to 100 (result unknown) • Represents a basic facts addition problem with a number sentence • Solves real-world whole number problems involving subtraction with numbers under 20 • Identifies the value of a collection of coins to \$1.00 (with pictures of coins) • Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable • Solves basic facts open sentences - multiplication and division • Connects money with place value
Use Functions to Model Relationships	Use Functions to Model Relationships	Use Functions to Model Relationships
		<ul style="list-style-type: none"> • Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> + addition, = is equal to, - subtraction, variable	<i>New Signs and Symbols:</i> () order of operations, ¢ cent sign, \$ dollar sign, tally mark

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Uses models to construct subtraction facts with differences through 10 (whole numbers) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Writes equivalent forms of whole number expressions (e.g., $15 + 5 = 10 + 10$) • Adds 1-digit numbers with sums to 18 (with parentheses) 	<p>Expressions & Properties of Operations</p>
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves basic-facts open sentences - addition and subtraction 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Solves problems using tally charts • Reads a chart or table - comparisons • Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves real-world whole number addition problems with sums to 20 (start unknown) • Solves real-world whole number addition problems with sums to 100 (result unknown) • Represents a basic facts addition problem with a number sentence • Solves real-world whole number problems involving subtraction with numbers under 20 • Identifies the value of a collection of coins to \$1.00 (with pictures of coins) • Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable • Solves basic facts open sentences - multiplication and division • Connects money with place value 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves real-world whole number problems involving subtraction with numbers 100 and under • Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only) • Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given • Solves real-world whole number addition problems with sums to 100 (result unknown) • Solves real-world whole number problems involving subtraction with numbers under 20 • Solves real-world whole number problems involving subtraction with numbers under 1000 • Solves word problems involving basic whole number multiplication facts to 10×10 • Uses manipulatives to divide a small set of objects into groups of equal size • Solves real-world whole number problems involving addition and subtraction • Demonstrates an understanding of the inverse relationship between multiplication and division • Identifies the value of a collection of coins to \$1.00 (without picture of coins) • Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) • Finds equivalent combinations of coins with the same value • Combines a collection of coins and identifies the correct notation • Makes change to \$1.00 by "counting on" or subtracting • Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only) • Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00 • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances) • Solves linear equations with basic facts - 1-step addition using a letter for the variable • Solves 1-step open sentences with missing addends (numbers 100 and under)

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities <ul style="list-style-type: none"> • Determines the operation needed from a simple problem • Writes a number sentence for a simple problem solving situation • Solves simple problems based on data from tally charts • Solves problems using tally charts
Use Functions to Model Relationships	Use Functions to Model Relationships <ul style="list-style-type: none"> • Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Extends a growing arithmetic pattern, defined by numbers
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> changed, gave, left, left over, pennies, row, unifix cubes
<i>New Signs and Symbols:</i> + addition, = is equal to, - subtraction, variable	<i>New Signs and Symbols:</i> () order of operations, ¢ cent sign, \$ dollar sign, tally mark	<i>New Signs and Symbols:</i> ÷ division, × multiplication

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Determines the operation needed from a simple problem Writes a number sentence for a simple problem solving situation Solves problems using tally charts Reads a chart or table - comparisons Solves real-world whole number addition problems with sums to 20 (result unknown) Solves real-world whole number addition problems with sums to 20 (start unknown) Solves real-world whole number addition problems with sums to 100 (result unknown) Represents a basic facts addition problem with a number sentence Solves real-world whole number problems involving subtraction with numbers under 20 Identifies the value of a collection of coins to \$1.00 (with pictures of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) Solves basic-facts open sentences - addition and subtraction Solves linear equations with basic facts - 1-step addition using a letter for the variable Solves basic facts open sentences - multiplication and division Connects money with place value 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves real-world whole number problems involving subtraction with numbers 100 and under Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only) Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given Solves real-world whole number addition problems with sums to 100 (result unknown) Solves real-world whole number problems involving subtraction with numbers under 20 Solves real-world whole number problems involving subtraction with numbers under 1000 Solves word problems involving basic whole number multiplication facts to 10 x 10 Uses manipulatives to divide a small set of objects into groups of equal size Solves real-world whole number problems involving addition and subtraction Demonstrates an understanding of the inverse relationship between multiplication and division Identifies the value of a collection of coins to \$1.00 (without picture of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) Finds equivalent combinations of coins with the same value Combines a collection of coins and identifies the correct notation Makes change to \$1.00 by "counting on" or subtracting Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only) Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00 Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances) Solves linear equations with basic facts - 1-step addition using a letter for the variable Solves 1-step open sentences with missing addends (numbers 100 and under) Determines the operation needed from a simple problem Writes a number sentence for a simple problem solving situation Solves simple problems based on data from tally charts Solves problems using tally charts 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves whole number addition word problems with sums over 1000 Solves real-world whole number problems involving subtraction with numbers 100 and under Solves real-world whole number problems involving subtraction with numbers under 1000 Solves whole number subtraction word problems with numbers over 1000 Solves word problems involving basic whole number multiplication facts to 10 x 10 Solves word problems involving whole number multiplication with numbers greater than 10 x 10 Uses manipulatives to divide a small set of objects into groups of equal size Solves word problems with whole number division facts with dividend and divisors less than 11 Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators Identifies the value of a collection of coins to \$1.00 (without picture of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (without picture of money) Finds equivalent combinations of coins with the same value Makes change to \$1.00 by "counting on" or subtracting Solves real-world problems involving decimals (not money) using addition and subtraction Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only) Computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only) Computes half price (multiplication/division) Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) Computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) Uses algebraic reasoning to solve problems involving equality relationships Solves 1-step open sentences with missing addends (numbers 100 and under) Solves 1-step open sentences with missing addends (numbers over 100)

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities <ul style="list-style-type: none"> • Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Determines the operation needed from a simple problem • Solves problems involving measurement of temperature • Solves problems using tally charts • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only) • Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given • Solves real-world whole number addition problems with sums to 20 (change unknown)
Use Functions to Model Relationships <ul style="list-style-type: none"> • Extends a growing arithmetic pattern, defined by numbers • Analyzes a growing, arithmetic pattern with numbers to determine the rule 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Extends a growing arithmetic pattern, defined by numbers 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Solves problems using tables • Extends a growing arithmetic pattern, defined by objects or diagrams • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels)
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> changed, gave, left, left over, pennies, row, unifix cubes	<i>New Vocabulary:</i> deposit, each, longer
<i>New Signs and Symbols:</i> () order of operations, ¢ cent sign, \$ dollar sign, tally mark	<i>New Signs and Symbols:</i> ÷ division, × multiplication	<i>New Signs and Symbols:</i> °F degrees Fahrenheit, g gram, lb pound, min minute

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
Expressions & Properties of Operations	Expressions & Properties of Operations	Expressions & Properties of Operations
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves real-world whole number problems involving subtraction with numbers 100 and under Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only) Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given Solves real-world whole number addition problems with sums to 100 (result unknown) Solves real-world whole number problems involving subtraction with numbers under 20 Solves real-world whole number problems involving subtraction with numbers under 1000 Solves word problems involving basic whole number multiplication facts to 10×10 Uses manipulatives to divide a small set of objects into groups of equal size Solves real-world whole number problems involving addition and subtraction Demonstrates an understanding of the inverse relationship between multiplication and division Identifies the value of a collection of coins to \$1.00 (without picture of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (with picture of money) Finds equivalent combinations of coins with the same value Combines a collection of coins and identifies the correct notation Makes change to \$1.00 by "counting on" or subtracting Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only) Computes 1 operation on addition or subtraction real-world problems involving money up to \$5.00 Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances) Solves linear equations with basic facts - 1-step addition using a letter for the variable Solves 1-step open sentences with missing addends (numbers 100 and under) Determines the operation needed from a simple problem 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Evaluates numerical expressions using grouping symbols (whole numbers only) Solves whole number addition word problems with sums over 1000 Solves real-world whole number problems involving subtraction with numbers 100 and under Solves real-world whole number problems involving subtraction with numbers under 1000 Solves whole number subtraction word problems with numbers over 1000 Solves word problems involving basic whole number multiplication facts to 10×10 Solves word problems involving whole number multiplication with numbers greater than 10×10 Uses manipulatives to divide a small set of objects into groups of equal size Solves word problems with whole number division facts with dividend and divisors less than 11 Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators Identifies the value of a collection of coins to \$1.00 (without picture of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (without picture of money) Finds equivalent combinations of coins with the same value Makes change to \$1.00 by "counting on" or subtracting Solves real-world problems involving decimals (not money) using addition and subtraction Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only) Computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only) Computes half price (multiplication/division) Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) Computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) Uses algebraic reasoning to solve problems involving equality relationships 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Evaluates numerical expressions using grouping symbols (whole numbers only) Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only) Uses rounding to estimate answers to 2-step problems involving money (using decimals) Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis) Solves whole number subtraction word problems with numbers over 1000 Solves word problems involving whole number multiplication with numbers greater than 10×10 Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) Solves word problems with whole number division facts with dividend and divisors less than 11 Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) Solves whole number word problems with division over 10×10 Determines the remainder in a real-world problem (whole numbers) Uses division for multiple-step real-world problems (whole numbers) Solves real-world problems involving 2-step multiple operations, whole numbers only Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators Computes the value of multiple bills and coins (addition/subtraction only) Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) Computes addition and subtraction on multiple-step real-world problems involving money Computes money problems with multiple operations (addition/subtraction only) Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money Solves real-world problems using reasoning strategies Solves real-world problems involving addition and subtraction of integers Understands equivalence and extends the concept to number sentences involving variables (e.g., $8 + 2 = \square + 2$)

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Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Writes a number sentence for a simple problem solving situation Solves simple problems based on data from tally charts Solves problems using tally charts 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves 1-step open sentences with missing addends (numbers 100 and under) Solves 1-step open sentences with missing addends (numbers over 100) Solves simple open sentences with missing factors (numbers 100 and under) Solves 2-step open sentences with missing addends Determines the operation needed from a simple problem Solves problems involving measurement of temperature Solves problems using tally charts Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only) Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given Solves real-world whole number addition problems with sums to 20 (change unknown) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses algebraic reasoning to solve problems involving equality relationships Uses simple linear equations to represent problem situations Solves 1-step open sentences with missing addends (numbers over 100) Solves simple open sentences with missing factors (numbers 100 and under) Solves 2-step open sentences with missing addends Solves open sentences with basic-facts calculations on both sides of the sentence Knows the approximate size of a pound Knows the approximate size of a gram
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Analyzes a growing, arithmetic pattern with numbers to determine the rule Extends a growing arithmetic pattern, defined by numbers 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Analyzes a growing, arithmetic pattern with numbers to determine the rule Solves problems using tables Extends a growing arithmetic pattern, defined by objects or diagrams Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Extends a growing arithmetic pattern, defined by objects or diagrams Describes a realistic situation using information given in a linear equation Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) Completes a function table given a simple rule (e.g., $x + 2$) Determines the rule and completes a simple function machine output Solves problems using tables
<p><i>New Vocabulary:</i> changed, gave, left, left over, pennies, row, unifix cubes</p>	<p><i>New Vocabulary:</i> deposit, each, longer</p>	<p><i>New Vocabulary:</i> minimum, plus</p>
<p><i>New Signs and Symbols:</i> ÷ division, × multiplication</p>	<p><i>New Signs and Symbols:</i> °F degrees Fahrenheit, g gram, lb pound, min minute</p>	<p><i>New Signs and Symbols:</i> a.m., °C degrees Celsius, = is equal to, m meter/metre, - negative number, p.m., + positive number</p>

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Evaluates numerical expressions using grouping symbols (whole numbers only) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Evaluates numerical expressions using grouping symbols (whole numbers only) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Demonstrates an understanding of the distributive property of multiplication by decomposing a term Calculates the value of a power (e.g., $2^3 = 8$) Uses powers to represent 10, 100, 1000, 10,000, and 100,000
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves whole number addition word problems with sums over 1000 Solves real-world whole number problems involving subtraction with numbers 100 and under Solves real-world whole number problems involving subtraction with numbers under 1000 Solves whole number subtraction word problems with numbers over 1000 Solves word problems involving basic whole number multiplication facts to 10×10 Solves word problems involving whole number multiplication with numbers greater than 10×10 Uses manipulatives to divide a small set of objects into groups of equal size Solves word problems with whole number division facts with dividend and divisors less than 11 Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators Identifies the value of a collection of coins to \$1.00 (without picture of coins) Identifies the value of a collection of coins and bills to \$10.00 by "counting on" (without picture of money) Finds equivalent combinations of coins with the same value Makes change to \$1.00 by "counting on" or subtracting Solves real-world problems involving decimals (not money) using addition and subtraction Computes with dollars and cents up to and including \$5.00 and converts to decimals (addition/subtraction only) Computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only) Computes half price (multiplication/division) Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) Computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only) Uses rounding to estimate answers to 2-step problems involving money (using decimals) Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis) Solves whole number subtraction word problems with numbers over 1000 Solves word problems involving whole number multiplication with numbers greater than 10×10 Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) Solves word problems with whole number division facts with dividend and divisors less than 11 Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) Solves whole number word problems with division over 10×10 Determines the remainder in a real-world problem (whole numbers) Uses division for multiple-step real-world problems (whole numbers) Solves real-world problems involving 2-step multiple operations, whole numbers only Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators Computes the value of multiple bills and coins (addition/subtraction only) Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) Computes addition and subtraction on multiple-step real-world problems involving money Computes money problems with multiple operations (addition/subtraction only) Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money Solves real-world problems using reasoning strategies 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Extends a growing geometric pattern - using numbers Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) Uses rounding to estimate answers to difficult multiplication and division problems (whole numbers only) Uses rounding to estimate answers to 2-step problems involving money (using decimals) Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) Solves whole number word problems with division over 10×10 Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) Solves real-world problems involving 2-step multiple operations, whole numbers only Solves real-world multiple-step problems involving whole numbers Predicts the relative size of the answer when multiplying whole numbers Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary Solves 1-step real-world problems involving fractions with multiplication and division Computes the value of multiple bills and coins (addition/subtraction only) Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only) Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) Computes addition and subtraction on multiple-step real-world problems involving money Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Uses algebraic reasoning to solve problems involving equality relationships • Solves 1-step open sentences with missing addends (numbers 100 and under) • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Determines the operation needed from a simple problem • Solves problems involving measurement of temperature • Solves problems using tally charts • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only) • Solves real-world whole number addition problems with sums to 20 (result unknown) - with extraneous information given • Solves real-world whole number addition problems with sums to 20 (change unknown) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves real-world problems involving addition and subtraction of integers • Understands equivalence and extends the concept to number sentences involving variables (e.g., $8 + 2 = \square + 2$) • Uses algebraic reasoning to solve problems involving equality relationships • Uses simple linear equations to represent problem situations • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under) • Solves 2-step open sentences with missing addends • Solves open sentences with basic-facts calculations on both sides of the sentence • Knows the approximate size of a pound • Knows the approximate size of a gram 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves real-world problems involving addition and subtraction of integers • Understands equivalence and extends the concept to number sentences involving variables (e.g., $8 + 2 = \square + 2$) • Uses algebraic reasoning to solve problems involving equality relationships • Uses simple linear equations to represent problem situations • Solves simple open sentences with missing factors (numbers over 100) • Solves open sentences using the distributive property • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors • Solves 1-step linear equations • Solves open sentences with integers • Applies algebraic methods to solve theoretical problems • Selects and uses the appropriate type and size of unit in metric system (mass) • Solves simple problems involving measurement of weight • Solves simple problems involving capacity • Solves real-world problems using reasoning strategies
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Analyzes a growing, arithmetic pattern with numbers to determine the rule • Solves problems using tables • Extends a growing arithmetic pattern, defined by objects or diagrams • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Extends a growing arithmetic pattern, defined by objects or diagrams • Describes a realistic situation using information given in a linear equation • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) • Completes a function table given a simple rule (e.g., $x + 2$) • Determines the rule and completes a simple function machine output • Solves problems using tables 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Determines the rule and completes a simple function machine output • Solves problems involving simple functions • Looks for a growing pattern to solve a problem • Interprets data in line graphs (e.g., change over time) • Completes a function table given a simple rule (e.g., $x + 2$) • Determines the rule given a simple real-world function table (e.g., # Dogs compared to # Legs) • Uses a table of input/output values to represent patterns
<p><i>New Vocabulary:</i> deposit, each, longer</p>	<p><i>New Vocabulary:</i> minimum, plus</p>	<p><i>New Vocabulary:</i> coin, triple</p>
<p><i>New Signs and Symbols:</i> °F degrees Fahrenheit, g gram, lb pound, min minute</p>	<p><i>New Signs and Symbols:</i> a.m., °C degrees Celsius, = is equal to, m meter/metre, - negative number, p.m., + positive number</p>	<p><i>New Signs and Symbols:</i> () parenthesis around an integer, d distance, \$ dollar sign, mph miles per hour, t time</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Evaluates numerical expressions using grouping symbols (whole numbers only) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Demonstrates an understanding of the distributive property of multiplication by decomposing a term Calculates the value of a power (e.g., $2^3 = 8$) Uses powers to represent 10, 100, 1000, 10,000, and 100,000 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) Represents relationships of quantities in the form of an expression Uses basic operations on algebraic expressions (uses correct order of operations) Uses powers to represent 10, 100, 1000, 10,000, and 100,000 Writes a number expressed in scientific notation in standard form Models algorithms using place value concepts (multiplication and division with whole numbers) Uses the distributive property Calculates the value of a power (e.g., $2^3 = 8$) Solves problems involving simple interest rates with the formula Uses basic operations on algebraic expressions (substituting for unknowns) Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties Uses basic operations on algebraic expressions (expanding - monomial by a binomial) Demonstrates an understanding of properties (e.g., commutative, associative, distributive, properties of 0)
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only) Uses rounding to estimate answers to 2-step problems involving money (using decimals) Solves real-world whole number problems involving subtraction with numbers 100 and under (analysis) Solves whole number subtraction word problems with numbers over 1000 Solves word problems involving whole number multiplication with numbers greater than 10×10 Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) Solves word problems with whole number division facts with dividend and divisors less than 11 Solves simple word problems involving whole number division with remainder (e.g., 1-step, 1-digit divisor) Solves whole number word problems with division over 10×10 Determines the remainder in a real-world problem (whole numbers) Uses division for multiple-step real-world problems (whole numbers) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Extends a growing geometric pattern - using numbers Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) Uses rounding to estimate answers to difficult multiplication and division problems (whole numbers only) Uses rounding to estimate answers to 2-step problems involving money (using decimals) Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) Solves whole number word problems with division over 10×10 Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) Solves real-world problems involving 2-step multiple operations, whole numbers only Solves real-world multiple-step problems involving whole numbers 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves 2-step linear equations Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) Solves real-world multiple-step problems involving whole numbers Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary Divides a fraction by a fraction Divides a mixed fraction by a fraction Solves 1-step real-world problems involving fractions with multiplication and division Solves 2- or more step real-world problems involving fractions with multiplication and division Solves problems involving fractions (e.g., multiple operations, conversions)

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves real-world problems involving 2-step multiple operations, whole numbers only Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators Computes the value of multiple bills and coins (addition/subtraction only) Computes with dollars and cents up to and including \$5.00 and converts to decimals (multiplication/division) Computes addition and subtraction on multiple-step real-world problems involving money Computes money problems with multiple operations (addition/subtraction only) Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money Solves real-world problems using reasoning strategies Solves real-world problems involving addition and subtraction of integers Understands equivalence and extends the concept to number sentences involving variables (e.g., $8 + 2 = \square + 2$) Uses algebraic reasoning to solve problems involving equality relationships Uses simple linear equations to represent problem situations Solves 1-step open sentences with missing addends (numbers over 100) Solves simple open sentences with missing factors (numbers 100 and under) Solves 2-step open sentences with missing addends Solves open sentences with basic-facts calculations on both sides of the sentence Knows the approximate size of a pound Knows the approximate size of a gram 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Predicts the relative size of the answer when multiplying whole numbers Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary Solves 1-step real-world problems involving fractions with multiplication and division Computes the value of multiple bills and coins (addition/subtraction only) Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only) Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) Computes addition and subtraction on multiple-step real-world problems involving money Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money Solves real-world problems involving addition and subtraction of integers Understands equivalence and extends the concept to number sentences involving variables (e.g., $8 + 2 = \square + 2$) Uses algebraic reasoning to solve problems involving equality relationships Uses simple linear equations to represent problem situations Solves simple open sentences with missing factors (numbers over 100) Solves open sentences using the distributive property Solves open sentences with calculations on both sides of the sentence Solves 2-step open sentences with missing factors Solves 1-step linear equations Solves open sentences with integers Applies algebraic methods to solve theoretical problems Selects and uses the appropriate type and size of unit in metric system (mass) Solves simple problems involving measurement of weight Solves simple problems involving capacity Solves real-world problems using reasoning strategies 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) Computes the value of multiple bills and coins (multiplication/division) Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) Solves real-world problems involving addition and subtraction of integers Solves problems involving addition and subtraction of integers Expresses a simple linear equation from a contextual situation Solves open sentences with calculations on both sides of the sentence Solves 2-step open sentences with missing factors Solves 1-step linear equations Solves linear equations with decimals Solves linear equations with integers Writes equivalent forms of algebraic equations using addition and subtraction Solves open sentences with decimals Solves linear equations in a real-world context using a given formula Applies algebraic methods to solve theoretical problems Applies algebraic methods to solve real-world problems Uses graphs to solve simple systems of linear equations Applies systems-of-linear-equations methods to solve theoretical problems Solves real-world problems using reasoning strategies
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Extends a growing arithmetic pattern, defined by objects or diagrams 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Determines the rule and completes a simple function machine output Solves problems involving simple functions 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Uses a table of input/output values to represent patterns Solves problems involving simple functions

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Describes a realistic situation using information given in a linear equation • Completes a simple function table based on real-life situations (e.g., the number of tricycles related to the number of wheels) • Completes a function table given a simple rule (e.g., $x + 2$) • Determines the rule and completes a simple function machine output • Solves problems using tables 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Looks for a growing pattern to solve a problem • Interprets data in line graphs (e.g., change over time) • Completes a function table given a simple rule (e.g., $x + 2$) • Determines the rule given a simple real-world function table (e.g., # Dogs compared to # Legs) • Uses a table of input/output values to represent patterns 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Looks for a growing pattern to solve a problem • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Represents geometric sequences using written descriptions in recursive terms (present term, next term)
<p><i>New Vocabulary:</i> minimum, plus</p>	<p><i>New Vocabulary:</i> coin, triple</p>	<p><i>New Vocabulary:</i> algebra, net, reflexive, short, transitive</p>
<p><i>New Signs and Symbols:</i> a.m., °C degrees Celsius, = is equal to, m meter/ metre, - negative number, p.m., + positive number</p>	<p><i>New Signs and Symbols:</i> () parenthesis around an integer, d distance, \$ dollar sign, mph miles per hour, t time</p>	<p><i>New Signs and Symbols:</i> < less than, repeating decimal overbar, Δ triangle</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Demonstrates an understanding of the distributive property of multiplication by decomposing a term • Calculates the value of a power (e.g., $2^3 = 8$) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) • Represents relationships of quantities in the form of an expression • Uses basic operations on algebraic expressions (uses correct order of operations) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000 • Writes a number expressed in scientific notation in standard form • Models algorithms using place value concepts (multiplication and division with whole numbers) • Uses the distributive property • Calculates the value of a power (e.g., $2^3 = 8$) • Solves problems involving simple interest rates with the formula • Uses basic operations on algebraic expressions (substituting for unknowns) • Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties • Uses basic operations on algebraic expressions (expanding - monomial by a binomial) • Demonstrates an understanding of properties (e.g., commutative, associative, distributive, properties of 0) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Calculates the power of a number (e.g., $8 = 2^3$) • Evaluates expressions containing powers (e.g., $3^2 \times 2^3$) • Solves problems with scientific notation • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation • Uses expressions to represent situations that involve variable quantities with exponents • Uses basic operations on algebraic expressions (substituting for unknowns) • Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties • Uses basic operations on algebraic expressions (combining like terms) • Uses basic operations on algebraic expressions (expanding - monomial by a binomial) • Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) • Represents relationships of quantities in the form of an expression • Uses basic operations on algebraic expressions (uses correct order of operations) • Writes a whole number in scientific notation • Determines the prime factorization of a number • Models algorithms using place value concepts (multiplication and division with whole numbers) • Evaluates numerical expressions using the order of operations (whole numbers only) • Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers) • Divides rational expressions in a/b form • Uses the distributive property
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Extends a growing geometric pattern - using numbers • Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Uses rounding to estimate answers to difficult multiplication and division problems (whole numbers only) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves 2-step linear equations • Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Uses estimation to solve problems involving proportional reasoning (decimals only) • Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary • Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms • Divides a fraction by a fraction

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Uses rounding to estimate answers to 2-step problems involving money (using decimals) • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects) • Solves whole number word problems with division over 10×10 • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Solves real-world problems involving 2-step multiple operations, whole numbers only • Solves real-world multiple-step problems involving whole numbers • Predicts the relative size of the answer when multiplying whole numbers • Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary • Solves 1-step real-world problems involving fractions with multiplication and division • Computes the value of multiple bills and coins (addition/subtraction only) • Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (addition/subtraction only) • Analyzes and computes 1 operation on real-world problems involving money over \$5.00 (multiplication/division) • Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) • Computes addition and subtraction on multiple-step real-world problems involving money • Computes addition, subtraction, multiplication, and division on multiple-step, real-world problems involving money • Solves real-world problems involving addition and subtraction of integers • Understands equivalence and extends the concept to number sentences involving variables (e.g., $8 + 2 = \square + 2$) • Uses algebraic reasoning to solve problems involving equality relationships • Uses simple linear equations to represent problem situations • Solves simple open sentences with missing factors (numbers over 100) • Solves open sentences using the distributive property • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors • Solves 1-step linear equations • Solves open sentences with integers 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves real-world multiple-step problems involving whole numbers • Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary • Divides a fraction by a fraction • Divides a mixed fraction by a fraction • Solves 1-step real-world problems involving fractions with multiplication and division • Solves 2- or more step real-world problems involving fractions with multiplication and division • Solves problems involving fractions (e.g., multiple operations, conversions) • Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) • Computes the value of multiple bills and coins (multiplication/division) • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Solves real-world problems involving addition and subtraction of integers • Solves problems involving addition and subtraction of integers • Expresses a simple linear equation from a contextual situation • Solves open sentences with calculations on both sides of the sentence • Solves 2-step open sentences with missing factors • Solves 1-step linear equations • Solves linear equations with decimals • Solves linear equations with integers • Writes equivalent forms of algebraic equations using addition and subtraction • Solves open sentences with decimals • Solves linear equations in a real-world context using a given formula • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems • Uses graphs to solve simple systems of linear equations • Applies systems-of-linear-equations methods to solve theoretical problems • Solves real-world problems using reasoning strategies 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Divides a fraction by a whole number • Divides a mixed fraction by a whole number • Divides a whole number by a mixed fraction • Divides a mixed fraction by a fraction • Solves 2- or more step real-world problems involving fractions with multiplication and division • Solves problems involving fractions (e.g., multiple operations, conversions) • Solves real-world problems involving rate of pay with time and a half • Solves problems involving addition and subtraction of integers • Expresses a simple linear equation from a contextual situation • Solves 2-step open sentences with missing factors (variables on both sides of the sentence) • Solves 2-step linear equations • Solves linear equations with integers • Solves linear equations with fractions • Solves linear equations using rational numbers • Applies algebraic methods to solve real-world problems • Determines slope from a linear equation • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses graphs to solve simple systems of linear equations • Solves simple one-step inequality open sentences • Expresses a simple linear inequality from a contextual situation • Solves simple linear inequalities using graphs • Converts from Celsius to Fahrenheit, given conversion ratios

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Applies algebraic methods to solve theoretical problems • Selects and uses the appropriate type and size of unit in metric system (mass) • Solves simple problems involving measurement of weight • Solves simple problems involving capacity • Solves real-world problems using reasoning strategies 	<p>Solve Problems and Use Equations & Inequalities</p>	<p>Solve Problems and Use Equations & Inequalities</p>
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Determines the rule and completes a simple function machine output • Solves problems involving simple functions • Looks for a growing pattern to solve a problem • Interprets data in line graphs (e.g., change over time) • Completes a function table given a simple rule (e.g., $x + 2$) • Determines the rule given a simple real-world function table (e.g., # Dogs compared to # Legs) • Uses a table of input/output values to represent patterns 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Uses a table of input/output values to represent patterns • Solves problems involving simple functions • Looks for a growing pattern to solve a problem • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Represents geometric sequences using written descriptions in recursive terms (present term, next term) 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Recognizes and extends arithmetic sequences (predicts nth term) • Recognizes and extends the Fibonacci sequence • Writes linear equations when given ordered pairs • Writes the equation of a horizontal or vertical line when given the graph of the line • Represents real-world functions using an equation • Uses mapping diagrams to represent functions • Uses tables to determine function equations • Identifies the graph type, given equations of linear and nonlinear functions • Solves problems involving simple functions • Solves problems involving complex functions • Interprets data given in line graphs to solve problems • Represents geometric sequences using written descriptions in recursive terms (present term, next term)
<p><i>New Vocabulary:</i> coin, triple</p>	<p><i>New Vocabulary:</i> algebra, net, reflexive, short, transitive</p>	<p><i>New Vocabulary:</i> algebraic sentence, arithmetic progression, depreciate, discount, equation of a line, is less than, regression equation, time-and-a-half</p>
<p><i>New Signs and Symbols:</i> () parenthesis around an integer, d distance, \$ dollar sign, mph miles per hour, t time</p>	<p><i>New Signs and Symbols:</i> < less than, repeating decimal overbar, Δ triangle</p>	<p><i>New Signs and Symbols:</i> \leq, \geq, () ordered pair, $f(x)$ the value of the function f at x, $>$ greater than, $>$ greater than, \geq greater than or equal to, kg kilogram, km kilometer/kilometre, \leq less than or equal to, • multiplication symbol (dot), % percent, - subtraction</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) Represents relationships of quantities in the form of an expression Uses basic operations on algebraic expressions (uses correct order of operations) Uses powers to represent 10, 100, 1000, 10,000, and 100,000 Writes a number expressed in scientific notation in standard form Models algorithms using place value concepts (multiplication and division with whole numbers) Uses the distributive property Calculates the value of a power (e.g., $2^3 = 8$) Solves problems involving simple interest rates with the formula Uses basic operations on algebraic expressions (substituting for unknowns) Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties Uses basic operations on algebraic expressions (expanding - monomial by a binomial) Demonstrates an understanding of properties (e.g., commutative, associative, distributive, properties of 0) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Calculates the power of a number (e.g., $8 = 2^3$) Evaluates expressions containing powers (e.g., $3^2 \times 2^3$) Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Uses basic operations on algebraic expressions (substituting for unknowns) Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties Uses basic operations on algebraic expressions (combining like terms) Uses basic operations on algebraic expressions (expanding - monomial by a binomial) Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) Represents relationships of quantities in the form of an expression Uses basic operations on algebraic expressions (uses correct order of operations) Writes a whole number in scientific notation Determines the prime factorization of a number Models algorithms using place value concepts (multiplication and division with whole numbers) Evaluates numerical expressions using the order of operations (whole numbers only) Evaluates expressions using the order of operations, including exponents (whole numbers only) Evaluates numerical expressions using the order of operations (using integers) Divides rational expressions in a/b form Uses the distributive property 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Determines the prime factorization of a number using powers Writes a whole number in scientific notation Writes a decimal in scientific notation Evaluates expressions using the order of operations, including exponents (whole numbers only) Evaluates numerical expressions using the order of operations (using integers) Simplifies expressions containing square roots Simplifies rational expressions with scientific notation Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Evaluates expressions by substituting with rational numbers Simplifies polynomial expressions Multiplies binomials Factors trinomials in the form $x^2 + bx + c$ Factors polynomials using difference of squares Uses basic operations on algebraic expressions (uses correct order of operations)
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves 2-step linear equations Uses rounding to estimate answers to real-world problems involving multiplication and division of numbers less than 100 (whole numbers only) Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with multiplication and division (whole numbers only) Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) Uses estimation to solve problems involving proportional reasoning (decimals only) Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms Divides a fraction by a fraction 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses reasoning strategies to solve problems Solves real-world problems involving rate of pay with time and a half Uses the multiplicative inverse property with rational numbers Solves linear equations with fractions Solves problems involving simple interest rates without the formula Solves 2-step open sentences with missing factors (variables on both sides of the sentence) Solves linear equations using rational numbers

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves real-world multiple-step problems involving whole numbers Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary Divides a fraction by a fraction Divides a mixed fraction by a fraction Solves 1-step real-world problems involving fractions with multiplication and division Solves 2- or more step real-world problems involving fractions with multiplication and division Solves problems involving fractions (e.g., multiple operations, conversions) Computes with dollars and cents over \$5.00 and converts to decimals (multiplication/division) Computes the value of multiple bills and coins (multiplication/division) Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) Solves real-world problems involving addition and subtraction of integers Solves problems involving addition and subtraction of integers Expresses a simple linear equation from a contextual situation Solves open sentences with calculations on both sides of the sentence Solves 2-step open sentences with missing factors Solves 1-step linear equations Solves linear equations with decimals Solves linear equations with integers Writes equivalent forms of algebraic equations using addition and subtraction Solves open sentences with decimals Solves linear equations in a real-world context using a given formula Applies algebraic methods to solve theoretical problems Applies algebraic methods to solve real-world problems Uses graphs to solve simple systems of linear equations Applies systems-of-linear-equations methods to solve theoretical problems Solves real-world problems using reasoning strategies 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Divides a fraction by a whole number Divides a mixed fraction by a whole number Divides a whole number by a mixed fraction Divides a mixed fraction by a fraction Solves 2- or more step real-world problems involving fractions with multiplication and division Solves problems involving fractions (e.g., multiple operations, conversions) Solves real-world problems involving rate of pay with time and a half Solves problems involving addition and subtraction of integers Expresses a simple linear equation from a contextual situation Solves 2-step open sentences with missing factors (variables on both sides of the sentence) Solves 2-step linear equations Solves linear equations with integers Solves linear equations with fractions Solves linear equations using rational numbers Applies algebraic methods to solve real-world problems Determines slope from a linear equation Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) Uses graphs to solve simple systems of linear equations Solves simple one-step inequality open sentences Expresses a simple linear inequality from a contextual situation Solves simple linear inequalities using graphs Converts from Celsius to Fahrenheit, given conversion ratios 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves open sentences with fractions Applies algebraic methods to solve real-world problems Applies algebraic methods to solve a variety of real-world and theoretical problems Solves problems involving consecutive numbers Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) Uses algebraic methods to solve systems of linear equations Solves simple one-step inequality open sentences Solves single variable linear inequalities with the variable in only one member using number lines Solves linear inequalities using graphs Solves complex real-world problems involving capacity Converts from Celsius to Fahrenheit, given conversion ratios
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Uses a table of input/output values to represent patterns Solves problems involving simple functions Looks for a growing pattern to solve a problem 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Recognizes and extends arithmetic sequences (predicts nth term) Recognizes and extends the Fibonacci sequence Writes linear equations when given ordered pairs 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Represents growing arithmetic patterns using algebraic expressions or equations Uses linear equations to represent situations involving variable quantities

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Extends a growing pattern of triangular numbers, defined by objects or diagrams • Represents geometric sequences using written descriptions in recursive terms (present term, next term) 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Writes the equation of a horizontal or vertical line when given the graph of the line • Represents real-world functions using an equation • Uses mapping diagrams to represent functions • Uses tables to determine function equations • Identifies the graph type, given equations of linear and nonlinear functions • Solves problems involving simple functions • Solves problems involving complex functions • Interprets data given in line graphs to solve problems • Represents geometric sequences using written descriptions in recursive terms (present term, next term) 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Writes linear equations when given ordered pairs • Writes the equation of a horizontal or vertical line when given the graph of the line • Determines x- or y-intercept of a given linear equation • Identifies and describes situations with varying rates of change • Solves quadratic equations using concrete models and tables • Uses tables to determine function equations • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation • Determines the minimum and maximum of a quadratic function • Analyzes the properties and characteristics of exponential functions • Determines the x- and/or y-intercept of an equation of a function • Performs operations on functions • Solves problems involving complex functions • Determines the domain and range of a function
<p><i>New Vocabulary:</i> algebra, net, reflexive, short, transitive</p> <p><i>New Signs and Symbols:</i> < less than, repeating decimal overbar, Δ triangle</p>	<p><i>New Vocabulary:</i> algebraic sentence, arithmetic progression, depreciate, discount, equation of a line, is less than, regression equation, time-and-a-half</p> <p><i>New Signs and Symbols:</i> \leq, \geq, () ordered pair, $f(x)$ the value of the function f at x, > greater than, \gt greater than, \geq greater than or equal to, kg kilogram, km kilometer/kilometre, \leq less than or equal to, \bullet multiplication symbol (dot), % percent, - subtraction</p>	<p><i>New Vocabulary:</i> exponential, identity, inverse, polynomial, reciprocal, solution set, y-intercept</p> <p><i>New Signs and Symbols:</i> None</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Calculates the power of a number (e.g., $8 = 2^3$) Evaluates expressions containing powers (e.g., $3^2 \times 2^3$) Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Uses basic operations on algebraic expressions (substituting for unknowns) Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties Uses basic operations on algebraic expressions (combining like terms) Uses basic operations on algebraic expressions (expanding - monomial by a binomial) Writes equivalent forms of algebraic expressions (e.g., $(x + 3)/2 = x/2 + 3/2$) Represents relationships of quantities in the form of an expression Uses basic operations on algebraic expressions (uses correct order of operations) Writes a whole number in scientific notation Determines the prime factorization of a number Models algorithms using place value concepts (multiplication and division with whole numbers) Evaluates numerical expressions using the order of operations (whole numbers only) Evaluates expressions using the order of operations, including exponents (whole numbers only) Evaluates numerical expressions using the order of operations (using integers) Divides rational expressions in a/b form Uses the distributive property 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Determines the prime factorization of a number using powers Writes a whole number in scientific notation Writes a decimal in scientific notation Evaluates expressions using the order of operations, including exponents (whole numbers only) Evaluates numerical expressions using the order of operations (using integers) Simplifies expressions containing square roots Simplifies rational expressions with scientific notation Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Evaluates expressions by substituting with rational numbers Simplifies polynomial expressions Multiplies binomials Factors trinomials in the form $x^2 + bx + c$ Factors polynomials using difference of squares Uses basic operations on algebraic expressions (uses correct order of operations) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Simplifies monomials Simplifies polynomial expressions Simplifies algebraic expressions with integer exponents Multiplies binomials Multiplies a polynomial by a polynomial Uses expressions to represent situations that involve variable quantities with exponents Factors polynomials by identifying common factors Factors trinomials in the form $x^2 + bx + c$ Factors polynomials using difference of squares Simplifies expressions containing square roots Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Divides a polynomial by a monomial Evaluates expressions by substituting with rational numbers
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) Uses estimation to solve problems involving proportional reasoning (decimals only) Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms Divides a fraction by a fraction 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses reasoning strategies to solve problems Solves real-world problems involving rate of pay with time and a half Uses the multiplicative inverse property with rational numbers Solves linear equations with fractions Solves problems involving simple interest rates without the formula Solves 2-step open sentences with missing factors (variables on both sides of the sentence) Solves linear equations using rational numbers 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses graphs to solve systems of linear inequalities Determines the length of the side of a square, given the area Uses reasoning strategies to solve problems Writes equivalent forms of algebraic equations using multiplication and division Solves linear equations using rational numbers Applies algebraic methods to solve complex real-world and theoretical problems

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Divides a fraction by a whole number • Divides a mixed fraction by a whole number • Divides a whole number by a mixed fraction • Divides a mixed fraction by a fraction • Solves 2- or more step real-world problems involving fractions with multiplication and division • Solves problems involving fractions (e.g., multiple operations, conversions) • Solves real-world problems involving rate of pay with time and a half • Solves problems involving addition and subtraction of integers • Expresses a simple linear equation from a contextual situation • Solves 2-step open sentences with missing factors (variables on both sides of the sentence) • Solves 2-step linear equations • Solves linear equations with integers • Solves linear equations with fractions • Solves linear equations using rational numbers • Applies algebraic methods to solve real-world problems • Determines slope from a linear equation • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses graphs to solve simple systems of linear equations • Solves simple one-step inequality open sentences • Expresses a simple linear inequality from a contextual situation • Solves simple linear inequalities using graphs • Converts from Celsius to Fahrenheit, given conversion ratios 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Solves open sentences with fractions • Applies algebraic methods to solve real-world problems • Applies algebraic methods to solve a variety of real-world and theoretical problems • Solves problems involving consecutive numbers • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses algebraic methods to solve systems of linear equations • Solves simple one-step inequality open sentences • Solves single variable linear inequalities with the variable in only one member using number lines • Solves linear inequalities using graphs • Solves complex real-world problems involving capacity • Converts from Celsius to Fahrenheit, given conversion ratios 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Rewrites a complex formula to solve for a specific variable • Solves quadratic equations by factoring • Solves quadratic equations by completing the square • Solves polynomial equations (e.g., $ax = b + cx$, $a(x + b) = c$, $ax + b = cx + d$, $a(bx + c) = d(ex + f)$, $a/x = b$) • Uses polynomial equations to solve area and perimeter problems • Uses the Multiplication Property of Equality as a first step in solving systems of linear equations • Uses substitution as a first step in solving systems of linear equations • Uses algebraic methods to solve systems of linear equations • Uses graphs to solve systems of linear equations • Solves real-world systems of linear equations • Solves single variable linear inequalities with the variable in only one member using number lines • Solves single variable linear inequalities with variable in both members using number lines
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Recognizes and extends arithmetic sequences (predicts nth term) • Recognizes and extends the Fibonacci sequence • Writes linear equations when given ordered pairs • Writes the equation of a horizontal or vertical line when given the graph of the line • Represents real-world functions using an equation • Uses mapping diagrams to represent functions • Uses tables to determine function equations • Identifies the graph type, given equations of linear and nonlinear functions • Solves problems involving simple functions 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Represents growing arithmetic patterns using algebraic expressions or equations • Uses linear equations to represent situations involving variable quantities • Writes linear equations when given ordered pairs • Writes the equation of a horizontal or vertical line when given the graph of the line • Determines x- or y-intercept of a given linear equation • Identifies and describes situations with varying rates of change • Solves quadratic equations using concrete models and tables • Uses tables to determine function equations 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> • Analyzes the properties and characteristics of exponential functions • Uses an algebraic expression to represent a triangular number pattern • Rewrites an equation for a line in standard form • Determines x- or y-intercept of a given linear equation • Writes the equation of the line when given the graph of the line • Determines the graph of a line when given the equation • Writes linear equations, given two points on a line • Determines slope from graphs • Determines slope from ordered pairs and tables • Interprets the meaning of slope and intercepts in problem solving situations

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Solves problems involving complex functions Interprets data given in line graphs to solve problems Represents geometric sequences using written descriptions in recursive terms (present term, next term) 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) Models real life functions using function notation Determines the minimum and maximum of a quadratic function Analyzes the properties and characteristics of exponential functions Determines the x- and/or y-intercept of an equation of a function Performs operations on functions Solves problems involving complex functions Determines the domain and range of a function 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Identifies and describes situations with varying rates of change Identifies discriminants and roots Solves polynomial equations with integers as exponents Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) Models real life functions using function notation Distinguishes between linear and nonlinear functions (analysis) Uses graphs to represent functions and interpret slope Identifies the equation of a parabola Determines the vertex of a parabola Determines the minimum and maximum of a quadratic function Investigates, describes, and predicts the effects of parameter changes on the graphs of exponential functions Determines the effects of parameter changes on functions Determines the domain and range of a function
<p><i>New Vocabulary:</i> algebraic sentence, arithmetic progression, depreciate, discount, equation of a line, is less than, regression equation, time-and-a-half</p>	<p><i>New Vocabulary:</i> exponential, identity, inverse, polynomial, reciprocal, solution set, y-intercept</p>	<p><i>New Vocabulary:</i> coordinate plane, quadratic equation, undefined, wider, x-coordinate, y-coordinate</p>
<p><i>New Signs and Symbols:</i> \leq, \geq, () ordered pair, $f(x)$ the value of the function f at x, $>$ greater than, $>$ greater than, \geq greater than or equal to, kg kilogram, km kilometer/kilometre, \leq less than or equal to, \bullet multiplication symbol (dot), % percent, - subtraction</p>	<p><i>New Signs and Symbols:</i> None</p>	<p><i>New Signs and Symbols:</i> [] square brackets, { } set notation, P perimeter</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) 261 - 270
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Determines the prime factorization of a number using powers Writes a whole number in scientific notation Writes a decimal in scientific notation Evaluates expressions using the order of operations, including exponents (whole numbers only) Evaluates numerical expressions using the order of operations (using integers) Simplifies expressions containing square roots Simplifies rational expressions with scientific notation Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Uses expressions to represent situations that involve variable quantities with exponents Evaluates expressions by substituting with rational numbers Simplifies polynomial expressions Multiplies binomials Factors trinomials in the form $x^2 + bx + c$ Factors polynomials using difference of squares Uses basic operations on algebraic expressions (uses correct order of operations) 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Simplifies monomials Simplifies polynomial expressions Simplifies algebraic expressions with integer exponents Multiplies binomials Multiplies a polynomial by a polynomial Uses expressions to represent situations that involve variable quantities with exponents Factors polynomials by identifying common factors Factors trinomials in the form $x^2 + bx + c$ Factors polynomials using difference of squares Simplifies expressions containing square roots Solves problems with scientific notation Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation Divides a polynomial by a monomial Evaluates expressions by substituting with rational numbers 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> Uses the compound interest equation to solve problems Simplifies monomials Simplifies polynomial expressions using power laws Factors polynomials by identifying a common monomial and then factoring the trinomial Estimates the limit of a given infinite sequence (e.g., given the sequence $1/n$, as n gets larger)
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses reasoning strategies to solve problems Solves real-world problems involving rate of pay with time and a half Uses the multiplicative inverse property with rational numbers Solves linear equations with fractions Solves problems involving simple interest rates without the formula Solves 2-step open sentences with missing factors (variables on both sides of the sentence) Solves linear equations using rational numbers Solves open sentences with fractions Applies algebraic methods to solve real-world problems Applies algebraic methods to solve a variety of real-world and theoretical problems Solves problems involving consecutive numbers Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) Uses algebraic methods to solve systems of linear equations Solves simple one-step inequality open sentences 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses graphs to solve systems of linear inequalities Determines the length of the side of a square, given the area Uses reasoning strategies to solve problems Writes equivalent forms of algebraic equations using multiplication and division Solves linear equations using rational numbers Applies algebraic methods to solve complex real-world and theoretical problems Rewrites a complex formula to solve for a specific variable Solves quadratic equations by factoring Solves quadratic equations by completing the square Solves polynomial equations (e.g., $ax = b + cx$, $a(x + b) = c$, $ax + b = cx + d$, $a(bx + c) = d(ex + f)$, $a/x = b$) Uses polynomial equations to solve area and perimeter problems Uses the Multiplication Property of Equality as a first step in solving systems of linear equations Uses substitution as a first step in solving systems of linear equations 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Rewrites a complex formula to solve for a specific variable Solves quadratic equations using the quadratic formula Solves quadratic equations by completing the square Solves real-world systems of linear equations Solves polynomial inequalities Uses graphs to solve systems of linear inequalities

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) 261 - 270
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Solves single variable linear inequalities with the variable in only one member using number lines Solves linear inequalities using graphs Solves complex real-world problems involving capacity Converts from Celsius to Fahrenheit, given conversion ratios 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> Uses algebraic methods to solve systems of linear equations Uses graphs to solve systems of linear equations Solves real-world systems of linear equations Solves single variable linear inequalities with the variable in only one member using number lines Solves single variable linear inequalities with variable in both members using number lines 	<p>Solve Problems and Use Equations & Inequalities</p>
<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Represents growing arithmetic patterns using algebraic expressions or equations Uses linear equations to represent situations involving variable quantities Writes linear equations when given ordered pairs Writes the equation of a horizontal or vertical line when given the graph of the line Determines x- or y-intercept of a given linear equation Identifies and describes situations with varying rates of change Solves quadratic equations using concrete models and tables Uses tables to determine function equations Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) Models real life functions using function notation Determines the minimum and maximum of a quadratic function Analyzes the properties and characteristics of exponential functions Determines the x- and/or y-intercept of an equation of a function Performs operations on functions Solves problems involving complex functions Determines the domain and range of a function 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Analyzes the properties and characteristics of exponential functions Uses an algebraic expression to represent a triangular number pattern Rewrites an equation for a line in standard form Determines x- or y-intercept of a given linear equation Writes the equation of the line when given the graph of the line Determines the graph of a line when given the equation Writes linear equations, given two points on a line Determines slope from graphs Determines slope from ordered pairs and tables Interprets the meaning of slope and intercepts in problem solving situations Identifies and describes situations with varying rates of change Identifies discriminants and roots Solves polynomial equations with integers as exponents Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) Models real life functions using function notation Distinguishes between linear and nonlinear functions (analysis) Uses graphs to represent functions and interpret slope Identifies the equation of a parabola Determines the vertex of a parabola Determines the minimum and maximum of a quadratic function Investigates, describes, and predicts the effects of parameter changes on the graphs of exponential functions Determines the effects of parameter changes on functions Determines the domain and range of a function 	<p>Use Functions to Model Relationships</p> <ul style="list-style-type: none"> Models real life functions using function notation Writes the equation of the line when given the graph of the line Writes linear equations, given slope and point on a line Determines the minimum and maximum of a quadratic function Analyzes the properties and characteristics of exponential functions
<p><i>New Vocabulary:</i> exponential, identity, inverse, polynomial, reciprocal, solution set, y-intercept</p>	<p><i>New Vocabulary:</i> coordinate plane, quadratic equation, undefined, wider, x-coordinate, y-coordinate</p>	<p><i>New Vocabulary:</i> geometric series, semi-annual</p>
<p><i>New Signs and Symbols:</i> None</p>	<p><i>New Signs and Symbols:</i> [] square brackets, { } set notation, P perimeter</p>	<p><i>New Signs and Symbols:</i> P principal, r rate</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) 261 - 270	Skills and Concepts to Introduce (27% Probability*) 271 - 280
<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Simplifies monomials • Simplifies polynomial expressions • Simplifies algebraic expressions with integer exponents • Multiplies binomials • Multiplies a polynomial by a polynomial • Uses expressions to represent situations that involve variable quantities with exponents • Factors polynomials by identifying common factors • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares • Simplifies expressions containing square roots • Solves problems with scientific notation • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation • Divides a polynomial by a monomial • Evaluates expressions by substituting with rational numbers 	<p>Expressions & Properties of Operations</p> <ul style="list-style-type: none"> • Uses the compound interest equation to solve problems • Simplifies monomials • Simplifies polynomial expressions using power laws • Factors polynomials by identifying a common monomial and then factoring the trinomial • Estimates the limit of a given infinite sequence (e.g., given the sequence $1/n$, as n gets larger) 	<p>Expressions & Properties of Operations</p>
<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Uses graphs to solve systems of linear inequalities • Determines the length of the side of a square, given the area • Uses reasoning strategies to solve problems • Writes equivalent forms of algebraic equations using multiplication and division • Solves linear equations using rational numbers • Applies algebraic methods to solve complex real-world and theoretical problems • Rewrites a complex formula to solve for a specific variable • Solves quadratic equations by factoring • Solves quadratic equations by completing the square • Solves polynomial equations (e.g., $ax = b + cx$, $a(x + b) = c$, $ax + b = cx + d$, $a(bx + c) = d(ex + f)$, $a/x = b$) • Uses polynomial equations to solve area and perimeter problems • Uses the Multiplication Property of Equality as a first step in solving systems of linear equations • Uses substitution as a first step in solving systems of linear equations • Uses algebraic methods to solve systems of linear equations • Uses graphs to solve systems of linear equations • Solves real-world systems of linear equations • Solves single variable linear inequalities with the variable in only one member using number lines 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Rewrites a complex formula to solve for a specific variable • Solves quadratic equations using the quadratic formula • Solves quadratic equations by completing the square • Solves real-world systems of linear equations • Solves polynomial inequalities • Uses graphs to solve systems of linear inequalities 	<p>Solve Problems and Use Equations & Inequalities</p> <ul style="list-style-type: none"> • Describes a relationship or a real-world situation represented by a quadratic equation

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) 261 - 270	Skills and Concepts to Introduce (27% Probability*) 271 - 280
Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities
<ul style="list-style-type: none"> Solves single variable linear inequalities with variable in both members using number lines 		
Use Functions to Model Relationships	Use Functions to Model Relationships	Use Functions to Model Relationships
<ul style="list-style-type: none"> Analyzes the properties and characteristics of exponential functions Uses an algebraic expression to represent a triangular number pattern Rewrites an equation for a line in standard form Determines x- or y-intercept of a given linear equation Writes the equation of the line when given the graph of the line Determines the graph of a line when given the equation Writes linear equations, given two points on a line Determines slope from graphs Determines slope from ordered pairs and tables Interprets the meaning of slope and intercepts in problem solving situations Identifies and describes situations with varying rates of change Identifies discriminants and roots Solves polynomial equations with integers as exponents Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) Models real life functions using function notation Distinguishes between linear and nonlinear functions (analysis) Uses graphs to represent functions and interpret slope Identifies the equation of a parabola Determines the vertex of a parabola Determines the minimum and maximum of a quadratic function Investigates, describes, and predicts the effects of parameter changes on the graphs of exponential functions Determines the effects of parameter changes on functions Determines the domain and range of a function 	<ul style="list-style-type: none"> Models real life functions using function notation Writes the equation of the line when given the graph of the line Writes linear equations, given slope and point on a line Determines the minimum and maximum of a quadratic function Analyzes the properties and characteristics of exponential functions 	<ul style="list-style-type: none"> Solves logarithmic equations
<i>New Vocabulary:</i> coordinate plane, quadratic equation, undefined, wider, x-coordinate, y-coordinate	<i>New Vocabulary:</i> geometric series, semi-annual	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> [] square brackets, { } set notation, P perimeter	<i>New Signs and Symbols:</i> P principal, r rate	<i>New Signs and Symbols:</i> None

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 261 - 270	Skills and Concepts to Develop (50% Probability*) 271 - 280	Skills and Concepts to Introduce (27% Probability*) > 280
Expressions & Properties of Operations <ul style="list-style-type: none"> • Uses the compound interest equation to solve problems • Simplifies monomials • Simplifies polynomial expressions using power laws • Factors polynomials by identifying a common monomial and then factoring the trinomial • Estimates the limit of a given infinite sequence (e.g., given the sequence $1/n$, as n gets larger) 	Expressions & Properties of Operations	Expressions & Properties of Operations
Solve Problems and Use Equations & Inequalities <ul style="list-style-type: none"> • Rewrites a complex formula to solve for a specific variable • Solves quadratic equations using the quadratic formula • Solves quadratic equations by completing the square • Solves real-world systems of linear equations • Solves polynomial inequalities • Uses graphs to solve systems of linear inequalities 	Solve Problems and Use Equations & Inequalities <ul style="list-style-type: none"> • Describes a relationship or a real-world situation represented by a quadratic equation 	Solve Problems and Use Equations & Inequalities <ul style="list-style-type: none"> • Describes a relationship or a real-world situation represented by a quadratic equation
Use Functions to Model Relationships <ul style="list-style-type: none"> • Models real life functions using function notation • Writes the equation of the line when given the graph of the line • Writes linear equations, given slope and point on a line • Determines the minimum and maximum of a quadratic function • Analyzes the properties and characteristics of exponential functions 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Solves logarithmic equations 	Use Functions to Model Relationships <ul style="list-style-type: none"> • Solves logarithmic equations
<i>New Vocabulary:</i> geometric series, semi-annual	<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> P principal, r rate	<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> None

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 271 - 280	Skills and Concepts to Develop (50% Probability*) > 280
Expressions & Properties of Operations	Expressions & Properties of Operations
Solve Problems and Use Equations & Inequalities	Solve Problems and Use Equations & Inequalities
<ul style="list-style-type: none"> Describes a relationship or a real-world situation represented by a quadratic equation 	<ul style="list-style-type: none"> Describes a relationship or a real-world situation represented by a quadratic equation
Use Functions to Model Relationships	Use Functions to Model Relationships
<ul style="list-style-type: none"> Solves logarithmic equations 	<ul style="list-style-type: none"> Solves logarithmic equations
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> None

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and Concepts to Develop (50% Probability*) < 161	Skills and Concepts to Introduce (27% Probability*) 161 - 170
Ratios and Proportional Relationships	Ratios and Proportional Relationships
	<ul style="list-style-type: none"> • Completes a growing arithmetic pattern by naming missing members
Perform Operations	Perform Operations
<ul style="list-style-type: none"> • Adds 1-digit to multiple-digit number with regrouping • Uses models to calculate whole number sums through 99 • Adds two 1-digit numbers with sums to 10 in horizontal format • Adds 1-digit to multiple-digit number with no regrouping 	<ul style="list-style-type: none"> • Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds 1-digit to multiple-digit number with no regrouping • Adds 1-digit to multiple-digit number with regrouping • Adds 2-digit numbers with no regrouping • Subtracts two 1-digit numbers horizontally • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Orders whole numbers less than 10 • Identifies missing numbers in a series through 100 • Uses a number line to construct addition facts with sums through 20 (whole numbers) • Uses models to calculate whole number sums through 99 • Adds two 1-digit numbers with sums to 10 in horizontal format • Counts 1 to 10 objects • Adds two 1-digit numbers with sums between 10 and 19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format • Adds multiple 1-digit numbers
Extend and Use Properties	Extend and Use Properties
<ul style="list-style-type: none"> • Identifies whole numbers under 100 using base-10 blocks • Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa) 	<ul style="list-style-type: none"> • Identifies whole numbers under 100 using base-10 blocks • Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa) • Writes whole numbers in standard and expanded form through the tens
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> + addition, = is equal to, × multiplication, variable

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) < 161	Skills and Concepts to Develop (50% Probability*) 161 - 170	Skills and Concepts to Introduce (27% Probability*) 171 - 180
Ratios and Proportional Relationships	Ratios and Proportional Relationships <ul style="list-style-type: none"> • Completes a growing arithmetic pattern by naming missing members 	Ratios and Proportional Relationships <ul style="list-style-type: none"> • Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour) • Completes a growing arithmetic pattern by naming missing members
Perform Operations <ul style="list-style-type: none"> • Adds 1-digit to multiple-digit number with regrouping • Uses models to calculate whole number sums through 99 • Adds two 1-digit numbers with sums to 10 in horizontal format • Adds 1-digit to multiple-digit number with no regrouping 	Perform Operations <ul style="list-style-type: none"> • Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds 1-digit to multiple-digit number with no regrouping • Adds 1-digit to multiple-digit number with regrouping • Adds 2-digit numbers with no regrouping • Subtracts two 1-digit numbers horizontally • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Orders whole numbers less than 10 • Identifies missing numbers in a series through 100 • Uses a number line to construct addition facts with sums through 20 (whole numbers) • Uses models to calculate whole number sums through 99 • Adds two 1-digit numbers with sums to 10 in horizontal format • Counts 1 to 10 objects • Adds two 1-digit numbers with sums between 10 and 19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format • Adds multiple 1-digit numbers 	Perform Operations <ul style="list-style-type: none"> • Uses a number line to construct addition facts with sums through 20 (whole numbers) • Uses models to calculate whole number sums through 999 • Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds two or three 2-digit number with regrouping • Adds 1- and/or 2-digit numbers with sums under 100 • Adds 3-digit numbers with no regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Subtracts 2- and/or 3-digit numbers with no regrouping • Multiplies basic facts to 10 x 10 vertically • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Recognizes addition and subtraction fact families through 18 • Identifies missing numbers in a series through 100 • Counts backwards from a given number (given number greater than 10)
Extend and Use Properties <ul style="list-style-type: none"> • Identifies whole numbers under 100 using base-10 blocks • Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa) 	Extend and Use Properties <ul style="list-style-type: none"> • Identifies whole numbers under 100 using base-10 blocks • Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa) • Writes whole numbers in standard and expanded form through the tens 	Extend and Use Properties <ul style="list-style-type: none"> • Counts objects that are grouped into tens and ones • Represents 1/4 with a diagram or model • Identifies the place value and value of each digit in whole numbers through the tens place • Represents 1/2 with a diagram or model • Identifies whole numbers 100 - 999 using base-10 blocks • Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa) • Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) • Counts by 2's to 100

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) < 161	Skills and Concepts to Develop (50% Probability*) 161 - 170	Skills and Concepts to Introduce (27% Probability*) 171 - 180
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties <ul style="list-style-type: none"> • Compares sets of objects and identifies which is equal to, more than, or less than the other (1 to 10 objects) • Compares whole numbers through 999 • Orders sets of objects 0-10 • Identifies one-half from a region or set
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> fact family, fourth, hundred, thirds, thousand
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> + addition, = is equal to, x multiplication, variable	<i>New Signs and Symbols:</i> - subtraction

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Completes a growing arithmetic pattern by naming missing members 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour) • Completes a growing arithmetic pattern by naming missing members 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Determines more capacity or less capacity • Completes arithmetic growth patterns in number tables by identifying the missing elements • Computes simple conversions among units of time (days, weeks)
<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds 1-digit to multiple-digit number with no regrouping • Adds 1-digit to multiple-digit number with regrouping • Adds 2-digit numbers with no regrouping • Subtracts two 1-digit numbers horizontally • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Orders whole numbers less than 10 • Identifies missing numbers in a series through 100 • Uses a number line to construct addition facts with sums through 20 (whole numbers) • Uses models to calculate whole number sums through 99 • Adds two 1-digit numbers with sums to 10 in horizontal format • Counts 1 to 10 objects • Adds two 1-digit numbers with sums between 10 and 19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format • Adds multiple 1-digit numbers 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses a number line to construct addition facts with sums through 20 (whole numbers) • Uses models to calculate whole number sums through 999 • Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds two or three 2-digit number with regrouping • Adds 1- and/or 2-digit numbers with sums under 100 • Adds 3-digit numbers with no regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Subtracts 2- and/or 3-digit numbers with no regrouping • Multiplies basic facts to 10 x 10 vertically • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Recognizes addition and subtraction fact families through 18 • Identifies missing numbers in a series through 100 • Counts backwards from a given number (given number greater than 10) 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Instantly recalls basic addition facts with sums to 18 in a table • Adds two or three 2-digit number with regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Performs mental computation with 2, 3, or 4 addends • Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 • Adds multiple-digit numbers, with regrouping, with sums over 1000 • Uses models to calculate differences through 100 (whole numbers) • Subtracts a 2-digit number from a 2-digit number, with regrouping • Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on) • Subtracts 2- and/or 3-digit numbers with no regrouping • Subtracts 3- or 4-digit numbers with regrouping • Performs mental subtraction with numbers under 1000 • Subtracts multiple-digit numbers with no regrouping • Solves problems using the inverse relationship between addition and subtraction • Uses counting by multiples for multiplication • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 2-digit number by a 2-digit number with no regrouping • Uses sharing for division • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Models multiplication and division algorithms using arrays (whole numbers) • Instantly recalls division facts with dividend and divisors less than 10 • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Adds decimals to the hundredths place (same number of digits) • Adds money with regrouping

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
Perform Operations	Perform Operations	Perform Operations <ul style="list-style-type: none"> • Identifies the number that is "1 less than" a given number • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., $14 = 7 + 7$) • Compares whole numbers through 9999
Extend and Use Properties <ul style="list-style-type: none"> • Identifies whole numbers under 100 using base-10 blocks • Identifies the numerical and written name for whole numbers 11 to 20 (e.g., 15 is fifteen, and vice versa) • Writes whole numbers in standard and expanded form through the tens 	Extend and Use Properties <ul style="list-style-type: none"> • Counts objects that are grouped into tens and ones • Represents $\frac{1}{4}$ with a diagram or model • Identifies the place value and value of each digit in whole numbers through the tens place • Represents $\frac{1}{2}$ with a diagram or model • Identifies whole numbers 100 - 999 using base-10 blocks • Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa) • Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) • Counts by 2's to 100 • Compares sets of objects and identifies which is equal to, more than, or less than the other (1 to 10 objects) • Compares whole numbers through 999 • Orders sets of objects 0-10 • Identifies one-half from a region or set 	Extend and Use Properties <ul style="list-style-type: none"> • Reads data in a line graph - no calculations • Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) • Identifies the numeral and written name for whole numbers to 1000 to 9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa) • Identifies the numeral and written name for whole numbers 10,000 to 100,000 • Compares whole numbers through 999 • Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Counts objects that are grouped into tens and ones • Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34) • Identifies the place value and value of each digit in whole numbers through the tens place • Identifies the place value and value of each digit in whole numbers through the hundreds place • Identifies the place value and value of each digit in whole numbers through the thousands • Identifies the place value and value of each digit in whole numbers through the hundred thousands • Represents $\frac{3}{4}$ with a diagram or model • Identifies equal parts by using models • Identifies $\frac{1}{2}$ from a region or set • Identifies one-half from a region or set • Identifies $\frac{1}{4}$ from a region or set • Identifies $\frac{2}{4}$, $\frac{3}{4}$, or $\frac{4}{4}$ from a region or set • Identifies $\frac{2}{3}$ or $\frac{3}{3}$ from a region or set • Identifies tenths from a region or set • Identifies eighths from a region or set • Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set • Distinguishes between odd and even numbers

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> fact family, fourth, hundred, thirds, thousand	<i>New Vocabulary:</i> closest, digit, fourths, hundreds, millimeter, million, nearest, one, ten thousand
<i>New Signs and Symbols:</i> + addition, = is equal to, × multiplication, variable	<i>New Signs and Symbols:</i> - subtraction	<i>New Signs and Symbols:</i> { } set notation, \$ dollar sign, long division symbol

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour) • Completes a growing arithmetic pattern by naming missing members 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Determines more capacity or less capacity • Completes arithmetic growth patterns in number tables by identifying the missing elements • Computes simple conversions among units of time (days, weeks) 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%) • Computes basic operations with units of weight/mass • Converts between cups and pints • Converts between cups, pints, and quarts • Computes simple conversions among units of time (minutes, hours) • Solves simple problems involving miles/kilometers per hour • Writes the missing number in a proportion using basic facts
<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses a number line to construct addition facts with sums through 20 (whole numbers) • Uses models to calculate whole number sums through 999 • Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds two or three 2-digit number with regrouping • Adds 1- and/or 2-digit numbers with sums under 100 • Adds 3-digit numbers with no regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Subtracts 2- and/or 3-digit numbers with no regrouping • Multiplies basic facts to 10 x 10 vertically • Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Recognizes addition and subtraction fact families through 18 • Identifies missing numbers in a series through 100 • Counts backwards from a given number (given number greater than 10) 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Instantly recalls basic addition facts with sums to 18 in a table • Adds two or three 2-digit number with regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Performs mental computation with 2, 3, or 4 addends • Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 • Adds multiple-digit numbers, with regrouping, with sums over 1000 • Uses models to calculate differences through 100 (whole numbers) • Subtracts a 2-digit number from a 2-digit number, with regrouping • Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on) • Subtracts 2- and/or 3-digit numbers with no regrouping • Subtracts 3- or 4-digit numbers with regrouping • Performs mental subtraction with numbers under 1000 • Subtracts multiple-digit numbers with no regrouping • Solves problems using the inverse relationship between addition and subtraction • Uses counting by multiples for multiplication • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 2-digit number by a 2-digit number with no regrouping • Uses sharing for division • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Models multiplication and division algorithms using arrays (whole numbers) • Instantly recalls division facts with dividend and divisors less than 10 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Performs mental computation with multiplication • Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 • Adds multiple-digit numbers, with regrouping, with sums over 1000 • Adds multiple-digit numbers with sums under 1000 • Subtracts 1-digit number from a 2-digit number with regrouping • Subtracts a 2-digit number from a 2-digit number, with regrouping • Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on) • Subtracts a 2-digit number from a 3-digit number with a single regrouping • Subtracts 3- or 4-digit numbers with regrouping • Performs mental subtraction with numbers under 1000 • Subtracts multiple-digit numbers with no regrouping • Solves problems using the inverse relationship between addition and subtraction • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 3- or 4-digit number by a 1-digit number • Multiplies a 2-digit number by a 2-digit number with no regrouping • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Instantly recalls division facts with dividend and divisors less than 10 • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 2-digit number by a 1-digit number with no remainder • Demonstrates an understanding of the zero property of multiplication

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
<p>Perform Operations</p>	<p>Perform Operations</p> <ul style="list-style-type: none"> • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Adds decimals to the hundredths place (same number of digits) • Adds money with regrouping • Identifies the number that is "1 less than" a given number • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., $14 = 7 + 7$) • Compares whole numbers through 9999 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses models to add and subtract fractions and connect the actions to algorithms • Subtracts fractions with like denominators without reducing • Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction • Adds decimals to the hundredths place (same number of digits) • Adds decimals to the hundredths place in vertical format (not same number of digits) • Adds decimals to the thousandths place vertically with and without regrouping • Adds money with regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Multiplies a decimal by whole number • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., $14 = 7 + 7$) • Identifies numbers as composite
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Counts objects that are grouped into tens and ones • Represents $\frac{1}{4}$ with a diagram or model • Identifies the place value and value of each digit in whole numbers through the tens place • Represents $\frac{1}{2}$ with a diagram or model • Identifies whole numbers 100 - 999 using base-10 blocks • Identifies the numerical and written name for whole numbers 21 to 100 (e.g., 62 is sixty-two, and vice versa) • Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) • Counts by 2's to 100 • Compares sets of objects and identifies which is equal to, more than, or less than the other (1 to 10 objects) • Compares whole numbers through 999 • Orders sets of objects 0-10 • Identifies one-half from a region or set 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Reads data in a line graph - no calculations • Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) • Identifies the numeral and written name for whole numbers to 1000 to 9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa) • Identifies the numeral and written name for whole numbers 10,000 to 100,000 • Compares whole numbers through 999 • Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Counts objects that are grouped into tens and ones • Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34) • Identifies the place value and value of each digit in whole numbers through the tens place • Identifies the place value and value of each digit in whole numbers through the hundreds place • Identifies the place value and value of each digit in whole numbers through the thousands • Identifies the place value and value of each digit in whole numbers through the hundred thousands • Represents $\frac{3}{4}$ with a diagram or model 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Rounds 2- and 3- digit whole numbers to the nearest ten • Reads data in a line graph - no calculations • Identifies whole numbers over 999 using base-10 blocks • Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph) • Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Identifies the numeral and written name for whole numbers 10,000 to 100,000 • Identifies the numeral and written name for whole numbers over 100,000 • Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (<, =, >) • Compares whole numbers through the thousands using the symbols <, >, or = • Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34) • Identifies the place value and value of each digit in whole numbers through the thousands • Identifies the place value and value of each digit in whole numbers through the hundred thousands

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
Extend and Use Properties	Extend and Use Properties <ul style="list-style-type: none"> • Identifies equal parts by using models • Identifies 1/2 from a region or set • Identifies one-half from a region or set • Identifies 1/4 from a region or set • Identifies 2/4, 3/4, or 4/4 from a region or set • Identifies 2/3 or 3/3 from a region or set • Identifies tenths from a region or set • Identifies eighths from a region or set • Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set • Distinguishes between odd and even numbers 	Extend and Use Properties <ul style="list-style-type: none"> • Writes whole numbers in standard and expanded form through the hundreds • Writes whole numbers in standard and expanded form through the thousands • Represents 1/3 with a diagram or model • Represents fractions with denominators other than 2, 3, 4 with a diagram or model • Identifies 1/4 from a region or set • Identifies 1/3 from a region or set • Identifies 2/3 or 3/3 from a region or set • Identifies tenths from a region or set • Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set • Identifies equivalent fractions using visual representations • Matches numeric and visual representation of equivalent fractions • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) • Distinguishes between odd and even numbers • Rounds 3-digit whole numbers to the nearest hundred
<i>New Vocabulary:</i> fact family, fourth, hundred, thirds, thousand	<i>New Vocabulary:</i> closest, digit, fourths, hundreds, millimeter, million, nearest, one, ten thousand	<i>New Vocabulary:</i> billion, composite number, decade, grid, hundred million, miles per hour, prime number, quintillion, standard numeral, trillion
<i>New Signs and Symbols:</i> - subtraction	<i>New Signs and Symbols:</i> { } set notation, \$ dollar sign, long division symbol	<i>New Signs and Symbols:</i> () ordered pair, °F degrees Fahrenheit, > greater than, < less than, mph miles per hour, % percent, • point, R remainder

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Determines more capacity or less capacity Completes arithmetic growth patterns in number tables by identifying the missing elements Computes simple conversions among units of time (days, weeks) 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%) Computes basic operations with units of weight/mass Converts between cups and pints Converts between cups, pints, and quarts Computes simple conversions among units of time (minutes, hours) Solves simple problems involving miles/kilometers per hour Writes the missing number in a proportion using basic facts 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Identifies the percent represented in a 2-D region Knows the approximate size of a yard Converts between inches and feet Solves simple problems involving measurement of length Converts between cups and pints Converts between cups, pints, and quarts Computes simple conversions among units of time (hours, days) Computes more difficult conversions among units of time Applies dimensional analysis to simple real-world problems (time) Solves simple problems involving miles per gallon Solves simple problems involving miles/kilometers per hour Identifies the percent represented in a given model Determines unit price Writes the missing number in a proportion using basic facts
<p>Perform Operations</p> <ul style="list-style-type: none"> Instantly recalls basic addition facts with sums to 18 in a table Adds two or three 2-digit number with regrouping Adds 3-digit numbers, with regrouping, with sums under 1000 Performs mental computation with 2, 3, or 4 addends Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers, with regrouping, with sums over 1000 Uses models to calculate differences through 100 (whole numbers) Subtracts a 2-digit number from a 2-digit number, with regrouping Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on) Subtracts 2- and/or 3-digit numbers with no regrouping Subtracts 3- or 4-digit numbers with regrouping Performs mental subtraction with numbers under 1000 Subtracts multiple-digit numbers with no regrouping Solves problems using the inverse relationship between addition and subtraction Uses counting by multiples for multiplication Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 Multiplies basic facts to 10 x 10 vertically Multiplies a 2-digit number by a 1-digit number with regrouping Multiplies a 2-digit number by a 2-digit number with no regrouping 	<p>Perform Operations</p> <ul style="list-style-type: none"> Performs mental computation with multiplication Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers with sums under 1000 Subtracts 1-digit number from a 2-digit number with regrouping Subtracts a 2-digit number from a 2-digit number, with regrouping Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on) Subtracts a 2-digit number from a 3-digit number with a single regrouping Subtracts 3- or 4-digit numbers with regrouping Performs mental subtraction with numbers under 1000 Subtracts multiple-digit numbers with no regrouping Solves problems using the inverse relationship between addition and subtraction Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping Multiplies a 2-digit number by a 1-digit number with regrouping Multiplies a 3- or 4-digit number by a 1-digit number Multiplies a 2-digit number by a 2-digit number with no regrouping 	<p>Perform Operations</p> <ul style="list-style-type: none"> Subtracts numbers with 5 digits or more with regrouping Performs mental computation with multiplication Adds multiple-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers with sums under 1000 Performs mental computation with more than 4 addends Subtracts 3- or 4-digit numbers with regrouping Solves problems using the inverse relationship between addition and subtraction Instantly recalls basic multiplication and division facts in a table Multiplies a 2-digit number by a 1-digit number with regrouping Multiplies a 3- or 4-digit number by a 1-digit number Multiplies multiple 1-digit numbers Multiplies a 2-digit number by a 2-digit number with regrouping Multiplies a 3-digit number by a 2-digit number with regrouping Multiplies a 2- or 3-digit number by multiples of 10 or 100 Multiplies a 3-digit number by a 3-digit number Instantly recalls division facts with dividend and divisors less than 13 Divides a 2-digit number by a 1-digit number with no remainder Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder Performs mental computation with division Divides a 3-digit number by a 1-digit number with no remainder

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses sharing for division • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Models multiplication and division algorithms using arrays (whole numbers) • Instantly recalls division facts with dividend and divisors less than 10 • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Adds decimals to the hundredths place (same number of digits) • Adds money with regrouping • Identifies the number that is "1 less than" a given number • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., $14 = 7 + 7$) • Compares whole numbers through 9999 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Instantly recalls division facts with dividend and divisors less than 10 • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 2-digit number by a 1-digit number with no remainder • Demonstrates an understanding of the zero property of multiplication • Uses models to add and subtract fractions and connect the actions to algorithms • Subtracts fractions with like denominators without reducing • Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction • Adds decimals to the hundredths place (same number of digits) • Adds decimals to the hundredths place in vertical format (not same number of digits) • Adds decimals to the thousandths place vertically with and without regrouping • Adds money with regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Multiplies a decimal by whole number • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., $14 = 7 + 7$) • Identifies numbers as composite 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 3-digit number by a multiple of 10 • Divides a 4-digit number by a 2-digit number • Uses models to add and subtract fractions and connect the actions to algorithms • Subtracts fractions with like denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Adds decimals to the thousandths place horizontally with and without regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Subtracts decimals through the hundred-thousandths place, vertically • Multiplies a decimal by whole number • Divides decimal by a whole number • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Reads data in a line graph - no calculations • Identifies the numeral and written name for whole numbers 101 to 999 (e.g., 342 is three hundred forty-two, and vice versa) • Identifies the numeral and written name for whole numbers to 1000 to 9999 (e.g., 3456 is three thousand, four hundred fifty-six, and vice versa) • Identifies the numeral and written name for whole numbers 10,000 to 100,000 • Compares whole numbers through 999 • Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Counts objects that are grouped into tens and ones • Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34) • Identifies the place value and value of each digit in whole numbers through the tens place 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Rounds 2- and 3- digit whole numbers to the nearest ten • Reads data in a line graph - no calculations • Identifies whole numbers over 999 using base-10 blocks • Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph) • Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Identifies the numeral and written name for whole numbers 10,000 to 100,000 • Identifies the numeral and written name for whole numbers over 100,000 • Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (<, =, >) 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Graphs ordered pairs in the first quadrant • Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph) • Locates the origin on a coordinate grid • Identifies whole numbers over 999 using base-10 blocks • Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place • Identifies the numeral and written name for whole numbers over 100,000 • Compares whole numbers through the billions using the symbols <, >, or = • Orders whole numbers a million or greater using < or > symbols • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Identifies the place value and value of each digit in whole numbers through the hundreds place Identifies the place value and value of each digit in whole numbers through the thousands Identifies the place value and value of each digit in whole numbers through the hundred thousands Represents $\frac{3}{4}$ with a diagram or model Identifies equal parts by using models Identifies $\frac{1}{2}$ from a region or set Identifies one-half from a region or set Identifies $\frac{1}{4}$ from a region or set Identifies $\frac{2}{4}$, $\frac{3}{4}$, or $\frac{4}{4}$ from a region or set Identifies $\frac{2}{3}$ or $\frac{3}{3}$ from a region or set Identifies tenths from a region or set Identifies eighths from a region or set Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set Distinguishes between odd and even numbers 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Compares whole numbers through the thousands using the symbols $<$, $>$, or $=$ Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34) Identifies the place value and value of each digit in whole numbers through the thousands Identifies the place value and value of each digit in whole numbers through the hundred thousands Writes whole numbers in standard and expanded form through the hundreds Writes whole numbers in standard and expanded form through the thousands Represents $\frac{1}{3}$ with a diagram or model Represents fractions with denominators other than 2, 3, 4 with a diagram or model Identifies $\frac{1}{4}$ from a region or set Identifies $\frac{1}{3}$ from a region or set Identifies $\frac{2}{3}$ or $\frac{3}{3}$ from a region or set Identifies tenths from a region or set Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set Identifies equivalent fractions using visual representations Matches numeric and visual representation of equivalent fractions Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) Distinguishes between odd and even numbers Rounds 3-digit whole numbers to the nearest hundred 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand Rounds whole numbers to the nearest hundred thousand Rounds wholes numbers to the nearest billion Explains the rules for rounding Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones) Identifies the place value and value of each digit in whole numbers through the billions Writes whole numbers in standard and expanded form through the hundred thousands Applies base ten place value concepts with whole numbers to solve problems Writes whole numbers using place value terms and vice versa Identifies halves of a region using nonadjacent parts Identifies equivalent fractions using visual representations Expresses "1" in many different ways (e.g., $\frac{3}{3}$, $\frac{4}{4}$) Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters) Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10) Orders fractions on a number line Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) Identifies a decimal on a number line to the tenths place Rounds decimals to the nearest whole number Compares integers on a number line Writes a terminating decimal as a fraction or mixed number
<p><i>New Vocabulary:</i> closest, digit, fourths, hundreds, millimeter, million, nearest, one, ten thousand</p>	<p><i>New Vocabulary:</i> billion, composite number, decade, grid, hundred million, miles per hour, prime number, quintillion, standard numeral, trillion</p>	<p><i>New Vocabulary:</i> biggest, coordinate, coordinate point, expanded numeral, larger, miles per gallon, origin</p>
<p><i>New Signs and Symbols:</i> { } set notation, \$ dollar sign, long division symbol</p>	<p><i>New Signs and Symbols:</i> () ordered pair, °F degrees Fahrenheit, > greater than, < less than, mph miles per hour, % percent, • point, R remainder</p>	<p><i>New Signs and Symbols:</i> ¢ cent sign, ft feet, in. inch, min minute, mpg miles per gallon, - negative number</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%) Computes basic operations with units of weight/mass Converts between cups and pints Converts between cups, pints, and quarts Computes simple conversions among units of time (minutes, hours) Solves simple problems involving miles/kilometers per hour Writes the missing number in a proportion using basic facts 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Identifies the percent represented in a 2-D region Knows the approximate size of a yard Converts between inches and feet Solves simple problems involving measurement of length Converts between cups and pints Converts between cups, pints, and quarts Computes simple conversions among units of time (hours, days) Computes more difficult conversions among units of time Applies dimensional analysis to simple real-world problems (time) Solves simple problems involving miles per gallon Solves simple problems involving miles/kilometers per hour Identifies the percent represented in a given model Determines unit price Writes the missing number in a proportion using basic facts 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving equivalent fractions Solves 1-step problems involving proportions Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) Knows the approximate size of a millimeter Converts between inches and feet Converts between inches, feet, and yards Solves simple problems involving measurement of length Converts between cups, pints, quarts, and gallons Apply dimensional analysis to simple real-world problems (capacity) Computes more difficult conversions among units of time Relates years, decades, centuries, and millenniums Applies dimensional analysis to simple real-world problems (time) Solves simple problems involving miles per gallon Determines unit price Solves problems involving rates Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%, 50%, 100%) Expresses a percent as a fraction with 100 as the denominator and vice versa Recognizes and writes proportions Identifies the percent represented in a 2-D region Identifies the percent represented in a given model
<p>Perform Operations</p> <ul style="list-style-type: none"> Performs mental computation with multiplication Adds two 3- and/or 4-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers with sums under 1000 Subtracts 1-digit number from a 2-digit number with regrouping Subtracts a 2-digit number from a 2-digit number, with regrouping Uses strategies for sums and differences with 2-digit numbers (e.g., decomposing, compatible, compensation, partial sums, counting on) Subtracts a 2-digit number from a 3-digit number with a single regrouping Subtracts 3- or 4-digit numbers with regrouping Performs mental subtraction with numbers under 1000 Subtracts multiple-digit numbers with no regrouping 	<p>Perform Operations</p> <ul style="list-style-type: none"> Subtracts numbers with 5 digits or more with regrouping Performs mental computation with multiplication Adds multiple-digit numbers, with regrouping, with sums over 1000 Adds multiple-digit numbers with sums under 1000 Performs mental computation with more than 4 addends Subtracts 3- or 4-digit numbers with regrouping Solves problems using the inverse relationship between addition and subtraction Instantly recalls basic multiplication and division facts in a table Multiplies a 2-digit number by a 1-digit number with regrouping Multiplies a 3- or 4-digit number by a 1-digit number Multiplies multiple 1-digit numbers Multiplies a 2-digit number by a 2-digit number with regrouping Multiplies a 3-digit number by a 2-digit number with regrouping 	<p>Perform Operations</p> <ul style="list-style-type: none"> Performs mental computation with multiplication Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only) Subtracts numbers with 5 digits or more with regrouping Instantly recalls basic multiplication and division facts in a table Multiplies a 2-digit number by a 2-digit number with regrouping Multiplies a 3-digit number by a 2-digit number with regrouping Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products) Multiplies a 3-digit number by a 3-digit number Multiplies a 4- or more digit number by multiples of 100 or 1000 Multiplies multiple-digit numbers Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Perform Operations</p> <ul style="list-style-type: none"> • Solves problems using the inverse relationship between addition and subtraction • Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12 • Multiplies a 2- or 3-digit number by a 1-digit number with no regrouping • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 3- or 4-digit number by a 1-digit number • Multiplies a 2-digit number by a 2-digit number with no regrouping • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Instantly recalls division facts with dividend and divisors less than 10 • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 2-digit number by a 1-digit number with no remainder • Demonstrates an understanding of the zero property of multiplication • Uses models to add and subtract fractions and connect the actions to algorithms • Subtracts fractions with like denominators without reducing • Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction • Adds decimals to the hundredths place (same number of digits) • Adds decimals to the hundredths place in vertical format (not same number of digits) • Adds decimals to the thousandths place vertically with and without regrouping • Adds money with regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Multiplies a decimal by whole number • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., $14 = 7 + 7$) • Identifies numbers as composite 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Multiplies a 2- or 3-digit number by multiples of 10 or 100 • Multiplies a 3-digit number by a 3-digit number • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 2-digit number by a 1-digit number with no remainder • Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder • Performs mental computation with division • Divides a 3-digit number by a 1-digit number with no remainder • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 3-digit number by a multiple of 10 • Divides a 4-digit number by a 2-digit number • Uses models to add and subtract fractions and connect the actions to algorithms • Subtracts fractions with like denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Adds decimals to the thousandths place horizontally with and without regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Subtracts decimals through the hundred-thousandths place, vertically • Multiplies a decimal by whole number • Divides decimal by a whole number • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Performs mental computation with division • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the associative property of multiplication • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths) • Subtracts fractions with unlike denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Subtracts mixed fractions with unlike denominators with no regrouping • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Adds decimals to the hundredths place in horizontal format (not same number of digits) • Adds decimals to the thousandths place horizontally with and without regrouping • Adds decimals through the hundred-thousandths place • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Divides decimal by a whole number • Adds integers with like signs • Uses models to add and subtract integers and connect the actions to algorithms • Multiplies integers with unlike signs • Divides integers with unlike signs

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Perform Operations</p>	<p>Perform Operations</p>	<p>Perform Operations</p> <ul style="list-style-type: none"> • Divides integers with like signs • Demonstrates an understanding that division by 0 is undefined • Writes a simple mixed fraction as a decimal and vice versa • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) • Determines factors of whole numbers • Identifies numbers as prime • Identifies common factors of two or more numbers • Identifies the greatest common factor of whole numbers
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Rounds 2- and 3- digit whole numbers to the nearest ten • Reads data in a line graph - no calculations • Identifies whole numbers over 999 using base-10 blocks • Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph) • Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Identifies the numeral and written name for whole numbers 10,000 to 100,000 • Identifies the numeral and written name for whole numbers over 100,000 • Compares whole numbers to 100, using the symbols for 'less than', 'equal to', or 'greater than' (<, =, >) • Compares whole numbers through the thousands using the symbols <, >, or = • Identifies whole numbers under 100 given place value terms (e.g., 3 tens and 4 ones = 34) • Identifies the place value and value of each digit in whole numbers through the thousands • Identifies the place value and value of each digit in whole numbers through the hundred thousands • Writes whole numbers in standard and expanded form through the hundreds • Writes whole numbers in standard and expanded form through the thousands • Represents 1/3 with a diagram or model • Represents fractions with denominators other than 2, 3, 4 with a diagram or model 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Graphs ordered pairs in the first quadrant • Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph) • Locates the origin on a coordinate grid • Identifies whole numbers over 999 using base-10 blocks • Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place • Identifies the numeral and written name for whole numbers over 100,000 • Compares whole numbers through the billions using the symbols <, >, or = • Orders whole numbers a million or greater using < or > symbols • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand • Rounds whole numbers to the nearest hundred thousand • Rounds wholes numbers to the nearest billion • Explains the rules for rounding • Writes equivalent forms of whole numbers using place value (e.g., 54 = 4 tens and 14 ones) • Identifies the place value and value of each digit in whole numbers through the billions • Writes whole numbers in standard and expanded form through the hundred thousands • Applies base ten place value concepts with whole numbers to solve problems • Writes whole numbers using place value terms and vice versa 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Predicts the relative size of the answer when computing with 10's, 100's, 1000's • Locates the origin on a coordinate grid • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand • Rounds wholes numbers to the nearest billion • Writes whole numbers in standard and expanded form through the hundred thousands • Identifies equivalent fractions using visual representations • Identifies a fractions in lowest terms from a region or set • Identifies eighths, reduced to lowest terms, from a region or set • Determines simple equivalent fractions using multiples • Converts fractions to lowest terms • Compares fractions on a number line • Compares fractions greater than or less than a given fraction using visual representations • Compares fractions and mixed numbers • Compares fractions and mixed numbers using symbols • Orders fractions on a number line • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) • Rounds decimals to the nearest whole number • Rounds decimals to the nearest tenth • Applies base ten place value concepts to solve problems using decimals • Identifies an integer from a number line • Compares two integers

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Identifies 1/4 from a region or set Identifies 1/3 from a region or set Identifies 2/3 or 3/3 from a region or set Identifies tenths from a region or set Identifies a fraction (denominators other than 2, 3, 4, 8, 10) from a region or set Identifies equivalent fractions using visual representations Matches numeric and visual representation of equivalent fractions Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) Distinguishes between odd and even numbers Rounds 3-digit whole numbers to the nearest hundred 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Identifies halves of a region using nonadjacent parts Identifies equivalent fractions using visual representations Expresses "1" in many different ways (e.g., 3/3, 4/4) Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters) Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10) Orders fractions on a number line Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) Identifies a decimal on a number line to the tenths place Rounds decimals to the nearest whole number Compares integers on a number line Writes a terminating decimal as a fraction or mixed number 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Orders integers on a number line Defines "integers" Expresses a simple fraction as a decimal Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10
<p><i>New Vocabulary:</i> billion, composite number, decade, grid, hundred million, miles per hour, prime number, quintillion, standard numeral, trillion</p>	<p><i>New Vocabulary:</i> biggest, coordinate, coordinate point, expanded numeral, larger, miles per gallon, origin</p>	<p><i>New Vocabulary:</i> century, common factor, decimal form, greatest common factor, integer, lowest term, lowest terms, reduce</p>
<p><i>New Signs and Symbols:</i> () ordered pair, °F degrees Fahrenheit, > greater than, < less than, mph miles per hour, % percent, • point, R remainder</p>	<p><i>New Signs and Symbols:</i> ¢ cent sign, ft feet, in. inch, min minute, mpg miles per gallon, - negative number</p>	<p><i>New Signs and Symbols:</i> () order of operations, () parenthesis around an integer, ÷ division, kg kilogram, - negative sign, ≠ not equal to, yd yard</p>

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Identifies the percent represented in a 2-D region Knows the approximate size of a yard Converts between inches and feet Solves simple problems involving measurement of length Converts between cups and pints Converts between cups, pints, and quarts Computes simple conversions among units of time (hours, days) Computes more difficult conversions among units of time Applies dimensional analysis to simple real-world problems (time) Solves simple problems involving miles per gallon Solves simple problems involving miles/kilometers per hour Identifies the percent represented in a given model Determines unit price Writes the missing number in a proportion using basic facts 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving equivalent fractions Solves 1-step problems involving proportions Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) Knows the approximate size of a millimeter Converts between inches and feet Converts between inches, feet, and yards Solves simple problems involving measurement of length Converts between cups, pints, quarts, and gallons Apply dimensional analysis to simple real-world problems (capacity) Computes more difficult conversions among units of time Relates years, decades, centuries, and millenniums Applies dimensional analysis to simple real-world problems (time) Solves simple problems involving miles per gallon Determines unit price Solves problems involving rates Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%, 50%, 100%) Expresses a percent as a fraction with 100 as the denominator and vice versa Recognizes and writes proportions Identifies the percent represented in a 2-D region Identifies the percent represented in a given model 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves real-world problems involving rate of pay Solves problems involving ratios Solves 1-step problems involving proportions Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) Calculates a percent of a number (e.g., 6% of 30) Calculates a number from a percent (e.g., 4 is 9% of what) Solves problems involving percents Solves problems involving tax and tips Measures length to the nearest millimeter Converts between inches, feet, and yards Converts between millimeters, centimeters, meters, and kilometers Uses dimensional analysis for unit conversions (length) Solves problems involving length in the customary system and converts to larger or smaller units Converts between ounces and pounds Converts between cups, pints, quarts, and gallons Converts within the metric system Apply dimensional analysis to simple real-world problems (capacity) Solves problems involving capacity in the customary system and converts to larger or smaller units Relates years, decades, centuries, and millenniums Computes 2-step conversions between units of time Applies dimensional analysis to simple real-world problems (time) Solves complex problems involving miles per gallon Solves complex problems involving miles/kilometers per hour Solves problems involving rates Uses alternative algorithms to explain the meaning of "fraction" Writes a ratio as a decimal and vice versa Expresses a percent as a fraction and vice versa Writes a ratio as a percent and vice versa Uses concrete and pictorial models to represent ratios Writes the missing number in a proportion with numbers other than basic facts (e.g., $5/13 = ?/117$)
<p>Perform Operations</p> <ul style="list-style-type: none"> Subtracts numbers with 5 digits or more with regrouping 	<p>Perform Operations</p> <ul style="list-style-type: none"> Performs mental computation with multiplication 	<p>Perform Operations</p>

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Perform Operations</p> <ul style="list-style-type: none"> • Performs mental computation with multiplication • Adds multiple-digit numbers, with regrouping, with sums over 1000 • Adds multiple-digit numbers with sums under 1000 • Performs mental computation with more than 4 addends • Subtracts 3- or 4-digit numbers with regrouping • Solves problems using the inverse relationship between addition and subtraction • Instantly recalls basic multiplication and division facts in a table • Multiplies a 2-digit number by a 1-digit number with regrouping • Multiplies a 3- or 4-digit number by a 1-digit number • Multiplies multiple 1-digit numbers • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Multiplies a 2- or 3-digit number by multiples of 10 or 100 • Multiplies a 3-digit number by a 3-digit number • Instantly recalls division facts with dividend and divisors less than 13 • Divides a 2-digit number by a 1-digit number with no remainder • Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder • Performs mental computation with division • Divides a 3-digit number by a 1-digit number with no remainder • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 3-digit number by a multiple of 10 • Divides a 4-digit number by a 2-digit number • Uses models to add and subtract fractions and connect the actions to algorithms • Subtracts fractions with like denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Adds decimals to the thousandths place horizontally with and without regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Subtracts decimals through the hundred-thousandths place, vertically • Multiplies a decimal by whole number • Divides decimal by a whole number • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only) • Subtracts numbers with 5 digits or more with regrouping • Instantly recalls basic multiplication and division facts in a table • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products) • Multiplies a 3-digit number by a 3-digit number • Multiplies a 4- or more digit number by multiples of 100 or 1000 • Multiplies multiple-digit numbers • Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder • Performs mental computation with division • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the associative property of multiplication • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths) • Subtracts fractions with unlike denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Subtracts mixed fractions with unlike denominators with no regrouping • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Adds decimals to the hundredths place in horizontal format (not same number of digits) 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only) • Multiplies multiple-digit numbers • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Demonstrates an understanding of multiple properties • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Adds mixed fractions where converting from improper fractions is necessary • Subtracts fractions with like denominators with reducing • Subtracts fractions with unlike denominators without reducing • Subtracts fractions with unlike denominators with reducing • Subtracts mixed fractions with unlike denominators with no regrouping • Subtracts whole numbers, fractions, and mixed fractions • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies a fraction by a fraction without reducing to simplest form (complex problem) • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Multiplies mixed fractions • Adds decimals to the hundredths place in horizontal format (not same number of digits) • Adds decimals through the hundred-thousandths place • Subtracts decimals to the hundredths place (not same number of digits) • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Subtracts decimals through the hundred-thousandths place, horizontally • Subtracts a decimal from a whole number, horizontally

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Perform Operations</p>	<p>Perform Operations</p> <ul style="list-style-type: none"> • Adds decimals to the thousandths place horizontally with and without regrouping • Adds decimals through the hundred-thousandths place • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Divides decimal by a whole number • Adds integers with like signs • Uses models to add and subtract integers and connect the actions to algorithms • Multiplies integers with unlike signs • Divides integers with unlike signs • Divides integers with like signs • Demonstrates an understanding that division by 0 is undefined • Writes a simple mixed fraction as a decimal and vice versa • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) • Determines factors of whole numbers • Identifies numbers as prime • Identifies common factors of two or more numbers • Identifies the greatest common factor of whole numbers 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Multiplies a decimal by 10, 100, 1000 • Multiplies a decimal by a decimal (factors to thousandths) • Divides a decimal by 10, 100, 1000 • Divides a decimal by a decimal • Calculate the sum of integers using a number line • Adds integers with unlike signs • Adds several positive and negative integers • Uses models to add and subtract integers and connect the actions to algorithms • Subtracts integers • Multiplies integers with unlike signs • Divides integers with unlike signs • Divides integers with like signs • Adds rational expressions in decimal form • Identifies the additive inverse property • Interprets data given in tables to solve problems • Writes a simple mixed fraction as a decimal and vice versa • Determines factors of whole numbers • Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility) • Uses factor and multiple concepts to solve simple problems • Identifies common factors of two or more numbers • Identifies the greatest common factor of whole numbers
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Graphs ordered pairs in the first quadrant • Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph) • Locates the origin on a coordinate grid • Identifies whole numbers over 999 using base-10 blocks • Identifies the numeral and written name for whole numbers with a zero between digits to the ten thousands place • Identifies the numeral and written name for whole numbers over 100,000 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Predicts the relative size of the answer when computing with 10's, 100's, 1000's • Locates the origin on a coordinate grid • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand • Rounds wholes numbers to the nearest billion • Writes whole numbers in standard and expanded form through the hundred thousands • Identifies equivalent fractions using visual representations • Identifies a fractions in lowest terms from a region or set 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Graphs ordered pairs in all quadrants • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) • Determines the relative magnitude of whole numbers • Rounds whole numbers to the nearest million • Writes whole numbers in standard and exponential form • Identifies a fractions in lowest terms from a region or set • Determines simple equivalent fractions using multiples • Determines equivalent fractions using multiples • Compares fractions (e.g., comparing numerators and denominators) • Writes a decimal for a shaded region to the hundredths place

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Compares whole numbers through the billions using the symbols $<$, $>$, or $=$ • Orders whole numbers a million or greater using $<$ or $>$ symbols • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand • Rounds whole numbers to the nearest hundred thousand • Rounds wholes numbers to the nearest billion • Explains the rules for rounding • Writes equivalent forms of whole numbers using place value (e.g., $54 = 4$ tens and 14 ones) • Identifies the place value and value of each digit in whole numbers through the billions • Writes whole numbers in standard and expanded form through the hundred thousands • Applies base ten place value concepts with whole numbers to solve problems • Writes whole numbers using place value terms and vice versa • Identifies halves of a region using nonadjacent parts • Identifies equivalent fractions using visual representations • Expresses "1" in many different ways (e.g., $3/3$, $4/4$) • Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters) • Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10) • Orders fractions on a number line • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) • Identifies a decimal on a number line to the tenths place • Rounds decimals to the nearest whole number • Compares integers on a number line • Writes a terminating decimal as a fraction or mixed number 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Identifies eighths, reduced to lowest terms, from a region or set • Determines simple equivalent fractions using multiples • Converts fractions to lowest terms • Compares fractions on a number line • Compares fractions greater than or less than a given fraction using visual representations • Compares fractions and mixed numbers • Compares fractions and mixed numbers using symbols • Orders fractions on a number line • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) • Rounds decimals to the nearest whole number • Rounds decimals to the nearest tenth • Applies base ten place value concepts to solve problems using decimals • Identifies an integer from a number line • Compares two integers • Orders integers on a number line • Defines "integers" • Expresses a simple fraction as a decimal • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Rounds decimals to the nearest hundredth • Rounds decimals to nearest thousandth • Identifies the place value and value of each digit to the hundredths and thousandths • Applies base ten place value concepts to solve problems using decimals • Compares two integers • Orders integers on a number line • Orders integers • Locates rational numbers on a number line • Orders rational numbers, in a/b form • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • Orders fractions and decimals to the hundred thousandths
<p><i>New Vocabulary:</i> biggest, coordinate, coordinate point, expanded numeral, larger, miles per gallon, origin</p>	<p><i>New Vocabulary:</i> century, common factor, decimal form, greatest common factor, integer, lowest term, lowest terms, reduce</p>	<p><i>New Vocabulary:</i> real number, ten million</p>
<p><i>New Signs and Symbols:</i> ¢ cent sign, ft feet, in. inch, min minute, mpg miles per gallon, - negative number</p>	<p><i>New Signs and Symbols:</i> () order of operations, () parenthesis around an integer, ÷ division, kg kilogram, - negative sign, ≠ not equal to, yd yard</p>	<p><i>New Signs and Symbols:</i> cm centimeter/centimetre, °C degrees Celsius, hr hour, km kilometer/kilometre, lb pound, ↔ line symbol, m meter/ metre, mL milliliter/millilitre, mm millimeter/millimetre, # number, / per, + positive number, : ratio, segment overbar</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving equivalent fractions Solves 1-step problems involving proportions Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) Knows the approximate size of a millimeter Converts between inches and feet Converts between inches, feet, and yards Solves simple problems involving measurement of length Converts between cups, pints, quarts, and gallons Apply dimensional analysis to simple real-world problems (capacity) Computes more difficult conversions among units of time Relates years, decades, centuries, and millenniums Applies dimensional analysis to simple real-world problems (time) Solves simple problems involving miles per gallon Determines unit price Solves problems involving rates Writes a basic percent as a fraction and vice versa (e.g., 10%, 25%, 50%, 100%) Expresses a percent as a fraction with 100 as the denominator and vice versa Recognizes and writes proportions Identifies the percent represented in a 2-D region Identifies the percent represented in a given model 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves real-world problems involving rate of pay Solves problems involving ratios Solves 1-step problems involving proportions Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) Calculates a percent of a number (e.g., 6% of 30) Calculates a number from a percent (e.g., 4 is 9% of what) Solves problems involving percents Solves problems involving tax and tips Measures length to the nearest millimeter Converts between inches, feet, and yards Converts between millimeters, centimeters, meters, and kilometers Uses dimensional analysis for unit conversions (length) Solves problems involving length in the customary system and converts to larger or smaller units Converts between ounces and pounds Converts between cups, pints, quarts, and gallons Converts within the metric system Apply dimensional analysis to simple real-world problems (capacity) Solves problems involving capacity in the customary system and converts to larger or smaller units Relates years, decades, centuries, and millenniums Computes 2-step conversions between units of time Applies dimensional analysis to simple real-world problems (time) Solves complex problems involving miles per gallon Solves complex problems involving miles/kilometers per hour Solves problems involving rates Uses alternative algorithms to explain the meaning of "fraction" Writes a ratio as a decimal and vice versa Expresses a percent as a fraction and vice versa Writes a ratio as a percent and vice versa Uses concrete and pictorial models to represent ratios Writes the missing number in a proportion with numbers other than basic facts (e.g., $5/13 = ?/117$) 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves real-world problems involving rate of pay Solves problems involving equivalent fractions (analysis) Solves problems involving ratios Solves multiple-step problems involving proportions Calculates a percent of a number (e.g., 6% of 30) Calculates the percent one number is of another (e.g., 20 is what % of 90) Solves problems involving percents Solves problems involving percents (analysis) Solves problems involving simple percent discounts (e.g., finding sale price) Solves problems involving percent increase and decrease Solves problems involving tax and tips Calculates commission/deductions and total pay Measures length to the nearest millimeter Converts between millimeters, centimeters, meters, and kilometers Uses dimensional analysis for unit conversions (length) Converts between the customary and metric system given conversion ratios (2-step, length) Apply dimensional analysis to simple real-world problems (length) Solves problems involving length in the customary system and converts to larger or smaller units Converts between grams and kilograms Solves problems involving weight in the customary system and converts to larger or smaller units Converts within the metric system Apply dimensional analysis to simple real-world problems (capacity) Solves problems involving capacity in the customary system and converts to larger or smaller units Solves problems involving capacity in the metric system and converts to larger or smaller units Solves complex problems involving miles per gallon Solves problems comparing unit prices Solves problems involving rates Writes a ratio as a decimal and vice versa Expresses a percent as a fraction and vice versa Writes a ratio as a percent and vice versa

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships • Identifies the ratio from a given real-world situation
Perform Operations <ul style="list-style-type: none"> • Performs mental computation with multiplication • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only) • Subtracts numbers with 5 digits or more with regrouping • Instantly recalls basic multiplication and division facts in a table • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products) • Multiplies a 3-digit number by a 3-digit number • Multiplies a 4- or more digit number by multiples of 100 or 1000 • Multiplies multiple-digit numbers • Divides a 2-digit number or a 3-digit number by a 1-digit number with a remainder • Performs mental computation with division • Divides a 4-digit number by a 1-digit number with no remainder • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the associative property of multiplication • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths) • Subtracts fractions with unlike denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Subtracts mixed fractions with unlike denominators with no regrouping • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies a fraction by a fraction where reducing to simplest form is necessary 	Perform Operations <ul style="list-style-type: none"> • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only) • Multiplies multiple-digit numbers • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Demonstrates an understanding of multiple properties • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Adds mixed fractions where converting from improper fractions is necessary • Subtracts fractions with like denominators with reducing • Subtracts fractions with unlike denominators without reducing • Subtracts fractions with unlike denominators with reducing • Subtracts mixed fractions with unlike denominators with no regrouping • Subtracts whole numbers, fractions, and mixed fractions • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies a fraction by a fraction without reducing to simplest form (complex problem) • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Multiplies mixed fractions • Adds decimals to the hundredths place in horizontal format (not same number of digits) • Adds decimals through the hundred-thousandths place • Subtracts decimals to the hundredths place (not same number of digits) • Subtracts decimals to the thousandths place, horizontally, with and without regrouping 	Perform Operations <ul style="list-style-type: none"> • Divides multiple-digit numbers • Divides numbers by powers of 10 • Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) • Adds mixed fractions where converting from improper fractions is necessary • Subtracts whole numbers, fractions, and mixed fractions • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Uses models to multiply and divide fractions and connect the actions to algorithms • Multiplies mixed fractions • Divides a whole number by a fraction • Divides a fraction by a mixed fraction • Divides a mixed fraction by a mixed fraction • Subtracts a decimal from a whole number, horizontally • Multiplies a decimal by 10, 100, 1000 • Divides a whole number by a decimal • Divides a decimal by 10, 100, 1000 • Divides a decimal by a decimal • Adds integers with unlike signs • Adds several positive and negative integers • Subtracts integers • Multiplies integers with like signs • Divides integers with like signs • Subtracts rational expressions in decimal form • Multiplies rational expressions • Identifies the additive inverse property • Performs basic operations on matrices • Interprets data given in tables to solve problems • Writes a fraction as a mixed decimal and vice versa

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Perform Operations</p> <ul style="list-style-type: none"> • Multiplies a fraction by a whole number • Adds decimals to the hundredths place in horizontal format (not same number of digits) • Adds decimals to the thousandths place horizontally with and without regrouping • Adds decimals through the hundred-thousandths place • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Divides decimal by a whole number • Adds integers with like signs • Uses models to add and subtract integers and connect the actions to algorithms • Multiplies integers with unlike signs • Divides integers with unlike signs • Divides integers with like signs • Demonstrates an understanding that division by 0 is undefined • Writes a simple mixed fraction as a decimal and vice versa • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction) • Determines factors of whole numbers • Identifies numbers as prime • Identifies common factors of two or more numbers • Identifies the greatest common factor of whole numbers 	<p>Perform Operations</p> <ul style="list-style-type: none"> • Subtracts decimals through the hundred-thousandths place, horizontally • Subtracts a decimal from a whole number, horizontally • Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) • Multiplies a decimal by a decimal (factors to hundredths) • Multiplies a decimal by 10, 100, 1000 • Multiplies a decimal by a decimal (factors to thousandths) • Divides a decimal by 10, 100, 1000 • Divides a decimal by a decimal • Calculate the sum of integers using a number line • Adds integers with unlike signs • Adds several positive and negative integers • Uses models to add and subtract integers and connect the actions to algorithms • Subtracts integers • Multiplies integers with unlike signs • Divides integers with unlike signs • Divides integers with like signs • Adds rational expressions in decimal form • Identifies the additive inverse property • Interprets data given in tables to solve problems • Writes a simple mixed fraction as a decimal and vice versa • Determines factors of whole numbers • Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility) • Uses factor and multiple concepts to solve simple problems • Identifies common factors of two or more numbers • Identifies the greatest common factor of whole numbers 	<p>Perform Operations</p>
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Predicts the relative size of the answer when computing with 10's, 100's, 1000's • Locates the origin on a coordinate grid • Rounds 4-, 5-, and 6-digit whole numbers to the nearest hundred • Rounds 4-, 5-, and 6-digit whole numbers to the nearest thousand • Rounds 4-, 5-, and 6-digit whole numbers to the nearest ten thousand • Rounds wholes numbers to the nearest billion 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Graphs ordered pairs in all quadrants • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) • Determines the relative magnitude of whole numbers • Rounds whole numbers to the nearest million • Writes whole numbers in standard and exponential form • Identifies a fractions in lowest terms from a region or set • Determines simple equivalent fractions using multiples 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Predicts the relative size of the answer when dividing a smaller whole number by a larger whole number • Applies rules for multiplying and dividing powers • Simplifies rational expressions with absolute value • Graphs ordered pairs in all quadrants • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) • Determines the relative magnitude of whole numbers

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Writes whole numbers in standard and expanded form through the hundred thousands Identifies equivalent fractions using visual representations Identifies a fractions in lowest terms from a region or set Identifies eighths, reduced to lowest terms, from a region or set Determines simple equivalent fractions using multiples Converts fractions to lowest terms Compares fractions on a number line Compares fractions greater than or less than a given fraction using visual representations Compares fractions and mixed numbers Compares fractions and mixed numbers using symbols Orders fractions on a number line Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers) Rounds decimals to the nearest whole number Rounds decimals to the nearest tenth Applies base ten place value concepts to solve problems using decimals Identifies an integer from a number line Compares two integers Orders integers on a number line Defines "integers" Expresses a simple fraction as a decimal Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Determines equivalent fractions using multiples Compares fractions (e.g., comparing numerators and denominators) Writes a decimal for a shaded region to the hundredths place Rounds decimals to the nearest hundredth Rounds decimals to nearest thousandth Identifies the place value and value of each digit to the hundredths and thousandths Applies base ten place value concepts to solve problems using decimals Compares two integers Orders integers on a number line Orders integers Locates rational numbers on a number line Orders rational numbers, in a/b form Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 Orders fractions and decimals to the hundred thousandths 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Writes whole numbers in standard and exponential form Compares fractions (e.g., comparing numerators and denominators) Rounds decimals to the nearest hundredth Writes a fraction as a decimal and vice versa Compares and orders decimal and fractional coordinates on a number line
<p><i>New Vocabulary:</i> century, common factor, decimal form, greatest common factor, integer, lowest term, lowest terms, reduce</p>	<p><i>New Vocabulary:</i> real number, ten million</p>	<p><i>New Vocabulary:</i> equality, matrix</p>
<p><i>New Signs and Symbols:</i> () order of operations, () parenthesis around an integer, ÷ division, kg kilogram, - negative sign, ≠ not equal to, yd yard</p>	<p><i>New Signs and Symbols:</i> cm centimeter/centimetre, °C degrees Celsius, hr hour, km kilometer/kilometre, lb pound, ↔ line symbol, m meter/metre, mL milliliter/millilitre, mm millimeter/millimetre, # number, / per, + positive number, : ratio, segment overbar</p>	<p><i>New Signs and Symbols:</i> absolute value, g gram, oz ounce</p>

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves real-world problems involving rate of pay Solves problems involving ratios Solves 1-step problems involving proportions Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%) Calculates a percent of a number (e.g., 6% of 30) Calculates a number from a percent (e.g., 4 is 9% of what) Solves problems involving percents Solves problems involving tax and tips Measures length to the nearest millimeter Converts between inches, feet, and yards Converts between millimeters, centimeters, meters, and kilometers Uses dimensional analysis for unit conversions (length) Solves problems involving length in the customary system and converts to larger or smaller units Converts between ounces and pounds Converts between cups, pints, quarts, and gallons Converts within the metric system Apply dimensional analysis to simple real-world problems (capacity) Solves problems involving capacity in the customary system and converts to larger or smaller units Relates years, decades, centuries, and millenniums Computes 2-step conversions between units of time Applies dimensional analysis to simple real-world problems (time) Solves complex problems involving miles per gallon Solves complex problems involving miles/kilometers per hour Solves problems involving rates Uses alternative algorithms to explain the meaning of "fraction" Writes a ratio as a decimal and vice versa Expresses a percent as a fraction and vice versa Writes a ratio as a percent and vice versa Uses concrete and pictorial models to represent ratios Writes the missing number in a proportion with numbers other than basic facts (e.g., $5/13 = ?/117$) 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves real-world problems involving rate of pay Solves problems involving equivalent fractions (analysis) Solves problems involving ratios Solves multiple-step problems involving proportions Calculates a percent of a number (e.g., 6% of 30) Calculates the percent one number is of another (e.g., 20 is what % of 90) Solves problems involving percents Solves problems involving percents (analysis) Solves problems involving simple percent discounts (e.g., finding sale price) Solves problems involving percent increase and decrease Solves problems involving tax and tips Calculates commission/deductions and total pay Measures length to the nearest millimeter Converts between millimeters, centimeters, meters, and kilometers Uses dimensional analysis for unit conversions (length) Converts between the customary and metric system given conversion ratios (2-step, length) Apply dimensional analysis to simple real-world problems (length) Solves problems involving length in the customary system and converts to larger or smaller units Converts between grams and kilograms Solves problems involving weight in the customary system and converts to larger or smaller units Converts within the metric system Apply dimensional analysis to simple real-world problems (capacity) Solves problems involving capacity in the customary system and converts to larger or smaller units Solves problems involving capacity in the metric system and converts to larger or smaller units Solves complex problems involving miles per gallon Solves problems comparing unit prices Solves problems involving rates Writes a ratio as a decimal and vice versa Expresses a percent as a fraction and vice versa Writes a ratio as a percent and vice versa 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves multiple-step problems involving proportions Solves problems involving a fractional increase Calculates the percent one number is of another (e.g., 20 is what % of 90) Calculates a percent of a rational number (e.g., 6% of 0.78) Solves problems involving percents (analysis) Solves problems involving simple percent discounts (e.g., finding sale price) Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) Calculates commission/deductions and total pay Solves problems involving successive discounts Uses dimensional analysis for unit conversions (length) Apply dimensional analysis to simple real-world problems (length) Solves problems involving weight in the customary system and converts to larger or smaller units Solves problems involving capacity in the metric system and converts to larger or smaller units Uses dimensional analysis for unit conversions (time) Solves problems involving rate conversions (e.g., mi/hr to ft/sec) Identifies the ratio from a given real-world situation

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
Ratios and Proportional Relationships	Ratios and Proportional Relationships <ul style="list-style-type: none"> Identifies the ratio from a given real-world situation 	Ratios and Proportional Relationships
Perform Operations <ul style="list-style-type: none"> Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only) Multiplies multiple-digit numbers Divides a 4-digit number by a 2-digit number Divides multiple-digit numbers Demonstrates an understanding of multiple properties Adds fractions with like denominators with reducing or converting to a mixed fraction Adds fractions with unlike denominators without reducing Adds fractions with unlike denominators with reducing or converting to a mixed fraction Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) Adds mixed fractions where converting from improper fractions is necessary Subtracts fractions with like denominators with reducing Subtracts fractions with unlike denominators without reducing Subtracts fractions with unlike denominators with reducing Subtracts mixed fractions with unlike denominators with no regrouping Subtracts whole numbers, fractions, and mixed fractions Subtracts whole numbers, fractions, and mixed fractions with regrouping Uses models to multiply and divide fractions and connect the actions to algorithms Multiplies a fraction by a fraction without reducing to simplest form (complex problem) Multiplies a fraction by a fraction where reducing to simplest form is necessary Multiplies a fraction by a whole number Multiplies mixed fractions Adds decimals to the hundredths place in horizontal format (not same number of digits) Adds decimals through the hundred-thousandths place Subtracts decimals to the hundredths place (not same number of digits) Subtracts decimals to the thousandths place, horizontally, with and without regrouping 	Perform Operations <ul style="list-style-type: none"> Divides multiple-digit numbers Divides numbers by powers of 10 Adds fractions with unlike denominators with reducing or converting to a mixed fraction Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) Adds mixed fractions where converting from improper fractions is necessary Subtracts whole numbers, fractions, and mixed fractions Subtracts whole numbers, fractions, and mixed fractions with regrouping Uses models to multiply and divide fractions and connect the actions to algorithms Multiplies mixed fractions Divides a whole number by a fraction Divides a fraction by a mixed fraction Divides a mixed fraction by a mixed fraction Subtracts a decimal from a whole number, horizontally Multiplies a decimal by 10, 100, 1000 Divides a whole number by a decimal Divides a decimal by 10, 100, 1000 Divides a decimal by a decimal Adds integers with unlike signs Adds several positive and negative integers Subtracts integers Multiplies integers with like signs Divides integers with like signs Subtracts rational expressions in decimal form Multiplies rational expressions Identifies the additive inverse property Performs basic operations on matrices Interprets data given in tables to solve problems Writes a fraction as a mixed decimal and vice versa 	Perform Operations <ul style="list-style-type: none"> Uses a number line to determine the distance between a positive and negative number Subtracts integers Performs basic operations on matrices Uses factor and multiple concepts to solve difficult problems Identifies the least common multiple of whole numbers

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Perform Operations</p> <ul style="list-style-type: none"> Subtracts decimals through the hundred-thousandths place, horizontally Subtracts a decimal from a whole number, horizontally Multiplies a decimal by a decimal, vertical form (factors to tenths or hundredths) Multiplies a decimal by a decimal (factors to hundredths) Multiplies a decimal by 10, 100, 1000 Multiplies a decimal by a decimal (factors to thousandths) Divides a decimal by 10, 100, 1000 Divides a decimal by a decimal Calculate the sum of integers using a number line Adds integers with unlike signs Adds several positive and negative integers Uses models to add and subtract integers and connect the actions to algorithms Subtracts integers Multiplies integers with unlike signs Divides integers with unlike signs Divides integers with like signs Adds rational expressions in decimal form Identifies the additive inverse property Interprets data given in tables to solve problems Writes a simple mixed fraction as a decimal and vice versa Determines factors of whole numbers Uses multiple number theory concepts to solve problems (e.g., factors, digits, odd/even, divisibility) Uses factor and multiple concepts to solve simple problems Identifies common factors of two or more numbers Identifies the greatest common factor of whole numbers 	<p>Perform Operations</p>	<p>Perform Operations</p>
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Graphs ordered pairs in all quadrants Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) Determines the relative magnitude of whole numbers Rounds whole numbers to the nearest million Writes whole numbers in standard and exponential form Identifies a fractions in lowest terms from a region or set Determines simple equivalent fractions using multiples 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Predicts the relative size of the answer when dividing a smaller whole number by a larger whole number Applies rules for multiplying and dividing powers Simplifies rational expressions with absolute value Graphs ordered pairs in all quadrants Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) Determines the relative magnitude of whole numbers 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Evaluates expressions using the order of operations, including exponents (using integers) Estimates the square roots of numbers Uses expressions with absolute value to represent situations Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Determines equivalent fractions using multiples • Compares fractions (e.g., comparing numerators and denominators) • Writes a decimal for a shaded region to the hundredths place • Rounds decimals to the nearest hundredth • Rounds decimals to nearest thousandth • Identifies the place value and value of each digit to the hundredths and thousandths • Applies base ten place value concepts to solve problems using decimals • Compares two integers • Orders integers on a number line • Orders integers • Locates rational numbers on a number line • Orders rational numbers, in a/b form • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • Orders fractions and decimals to the hundred thousandths 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Writes whole numbers in standard and exponential form • Compares fractions (e.g., comparing numerators and denominators) • Rounds decimals to the nearest hundredth • Writes a fraction as a decimal and vice versa • Compares and orders decimal and fractional coordinates on a number line 	<p>Extend and Use Properties</p>
<p><i>New Vocabulary:</i> real number, ten million</p>	<p><i>New Vocabulary:</i> equality, matrix</p>	<p><i>New Vocabulary:</i> feet per second, least common multiple</p>
<p><i>New Signs and Symbols:</i> cm centimeter/centimetre, °C degrees Celsius, hr hour, km kilometer/kilometre, lb pound, ↔ line symbol, m meter/etre, mL milliliter/millilitre, mm millimeter/millimetre, # number, / per, + positive number, : ratio, segment overbar</p>	<p><i>New Signs and Symbols:</i> absolute value, g gram, oz ounce</p>	<p><i>New Signs and Symbols:</i> LCM lowest common multiple, sec second, square root symbol</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Solves real-world problems involving decimals (not money) using multiplication • Solves real-world problems involving rate of pay • Solves problems involving equivalent fractions (analysis) • Solves problems involving ratios • Solves multiple-step problems involving proportions • Calculates a percent of a number (e.g., 6% of 30) • Calculates the percent one number is of another (e.g., 20 is what % of 90) • Solves problems involving percents • Solves problems involving percents (analysis) • Solves problems involving simple percent discounts (e.g., finding sale price) • Solves problems involving percent increase and decrease • Solves problems involving tax and tips • Calculates commission/deductions and total pay • Measures length to the nearest millimeter • Converts between millimeters, centimeters, meters, and kilometers • Uses dimensional analysis for unit conversions (length) • Converts between the customary and metric system given conversion ratios (2-step, length) • Apply dimensional analysis to simple real-world problems (length) • Solves problems involving length in the customary system and converts to larger or smaller units • Converts between grams and kilograms • Solves problems involving weight in the customary system and converts to larger or smaller units • Converts within the metric system • Apply dimensional analysis to simple real-world problems (capacity) • Solves problems involving capacity in the customary system and converts to larger or smaller units • Solves problems involving capacity in the metric system and converts to larger or smaller units • Solves complex problems involving miles per gallon • Solves problems comparing unit prices • Solves problems involving rates • Writes a ratio as a decimal and vice versa • Expresses a percent as a fraction and vice versa • Writes a ratio as a percent and vice versa 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Solves real-world problems involving decimals (not money) using multiplication • Solves multiple-step problems involving proportions • Solves problems involving a fractional increase • Calculates the percent one number is of another (e.g., 20 is what % of 90) • Calculates a percent of a rational number (e.g., 6% of 0.78) • Solves problems involving percents (analysis) • Solves problems involving simple percent discounts (e.g., finding sale price) • Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) • Calculates commission/deductions and total pay • Solves problems involving successive discounts • Uses dimensional analysis for unit conversions (length) • Apply dimensional analysis to simple real-world problems (length) • Solves problems involving weight in the customary system and converts to larger or smaller units • Solves problems involving capacity in the metric system and converts to larger or smaller units • Uses dimensional analysis for unit conversions (time) • Solves problems involving rate conversions (e.g., mi/hr to ft/sec) • Identifies the ratio from a given real-world situation 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> • Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) • Solves problems involving successive discounts • Uses dimensional analysis for unit conversions (time) • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
Ratios and Proportional Relationships	Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul style="list-style-type: none"> Identifies the ratio from a given real-world situation 		
Perform Operations	Perform Operations	Perform Operations
<ul style="list-style-type: none"> Divides multiple-digit numbers Divides numbers by powers of 10 Adds fractions with unlike denominators with reducing or converting to a mixed fraction Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths) Adds mixed fractions where converting from improper fractions is necessary Subtracts whole numbers, fractions, and mixed fractions Subtracts whole numbers, fractions, and mixed fractions with regrouping Uses models to multiply and divide fractions and connect the actions to algorithms Multiplies mixed fractions Divides a whole number by a fraction Divides a fraction by a mixed fraction Divides a mixed fraction by a mixed fraction Subtracts a decimal from a whole number, horizontally Multiplies a decimal by 10, 100, 1000 Divides a whole number by a decimal Divides a decimal by 10, 100, 1000 Divides a decimal by a decimal Adds integers with unlike signs Adds several positive and negative integers Subtracts integers Multiplies integers with like signs Divides integers with like signs Subtracts rational expressions in decimal form Multiplies rational expressions Identifies the additive inverse property Performs basic operations on matrices Interprets data given in tables to solve problems Writes a fraction as a mixed decimal and vice versa 	<ul style="list-style-type: none"> Uses a number line to determine the distance between a positive and negative number Subtracts integers Performs basic operations on matrices Uses factor and multiple concepts to solve difficult problems Identifies the least common multiple of whole numbers 	<ul style="list-style-type: none"> Uses the additive inverse property with rational numbers Performs operations on complex numbers and expresses the results in simplest form Performs basic operations on matrices Uses factor and multiple concepts to solve difficult problems
Extend and Use Properties	Extend and Use Properties	Extend and Use Properties
<ul style="list-style-type: none"> Predicts the relative size of the answer when dividing a smaller whole number by a larger whole number 	<ul style="list-style-type: none"> Evaluates expressions using the order of operations, including exponents (using integers) 	<ul style="list-style-type: none"> Simplifies rational expressions with exponents Simplifies radical expressions

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Applies rules for multiplying and dividing powers • Simplifies rational expressions with absolute value • Graphs ordered pairs in all quadrants • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) • Determines the relative magnitude of whole numbers • Writes whole numbers in standard and exponential form • Compares fractions (e.g., comparing numerators and denominators) • Rounds decimals to the nearest hundredth • Writes a fraction as a decimal and vice versa • Compares and orders decimal and fractional coordinates on a number line 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Estimates the square roots of numbers • Uses expressions with absolute value to represent situations • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> • Uses expressions with absolute value to represent situations • Uses fractional and negative exponents as optional ways of representing problem situations (e.g., $27^{2/3} = (27^{1/3})^2 = 9$)
<p><i>New Vocabulary:</i> equality, matrix</p>	<p><i>New Vocabulary:</i> feet per second, least common multiple</p>	<p><i>New Vocabulary:</i> None</p>
<p><i>New Signs and Symbols:</i> absolute value, g gram, oz ounce</p>	<p><i>New Signs and Symbols:</i> LCM lowest common multiple, sec second, square root symbol</p>	<p><i>New Signs and Symbols:</i> i square root of -1</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) > 260
<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves real-world problems involving decimals (not money) using multiplication Solves multiple-step problems involving proportions Solves problems involving a fractional increase Calculates the percent one number is of another (e.g., 20 is what % of 90) Calculates a percent of a rational number (e.g., 6% of 0.78) Solves problems involving percents (analysis) Solves problems involving simple percent discounts (e.g., finding sale price) Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) Calculates commission/deductions and total pay Solves problems involving successive discounts Uses dimensional analysis for unit conversions (length) Apply dimensional analysis to simple real-world problems (length) Solves problems involving weight in the customary system and converts to larger or smaller units Solves problems involving capacity in the metric system and converts to larger or smaller units Uses dimensional analysis for unit conversions (time) Solves problems involving rate conversions (e.g., mi/hr to ft/sec) Identifies the ratio from a given real-world situation 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) Solves problems involving successive discounts Uses dimensional analysis for unit conversions (time) Solves problems involving rate conversions (e.g., mi/hr to ft/sec) 	<p>Ratios and Proportional Relationships</p> <ul style="list-style-type: none"> Solves problems involving successive discounts Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
<p>Perform Operations</p> <ul style="list-style-type: none"> Uses a number line to determine the distance between a positive and negative number Subtracts integers Performs basic operations on matrices Uses factor and multiple concepts to solve difficult problems Identifies the least common multiple of whole numbers 	<p>Perform Operations</p> <ul style="list-style-type: none"> Uses the additive inverse property with rational numbers Performs operations on complex numbers and expresses the results in simplest form Performs basic operations on matrices Uses factor and multiple concepts to solve difficult problems 	<p>Perform Operations</p> <ul style="list-style-type: none"> Performs operations on complex numbers and expresses the results in simplest form
<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Evaluates expressions using the order of operations, including exponents (using integers) Estimates the square roots of numbers Uses expressions with absolute value to represent situations Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines) 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Simplifies rational expressions with exponents Simplifies radical expressions Uses expressions with absolute value to represent situations Uses fractional and negative exponents as optional ways of representing problem situations (e.g., $27^{2/3} = (27^{1/3})^2 = 9$) 	<p>Extend and Use Properties</p> <ul style="list-style-type: none"> Simplifies rational expressions with exponents Simplifies rational expressions with negative exponents

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) > 260
<i>New Vocabulary:</i> feet per second, least common multiple	<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> LCM lowest common multiple, sec second, square root symbol	<i>New Signs and Symbols:</i> i square root of -1	<i>New Signs and Symbols:</i> None

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Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) > 260
Ratios and Proportional Relationships	Ratios and Proportional Relationships
<ul style="list-style-type: none"> Solves problems involving complex percent discounts (e.g., finding percent discount, regular price) Solves problems involving successive discounts Uses dimensional analysis for unit conversions (time) Solves problems involving rate conversions (e.g., mi/hr to ft/sec) 	<ul style="list-style-type: none"> Solves problems involving successive discounts Solves problems involving rate conversions (e.g., mi/hr to ft/sec)
Perform Operations	Perform Operations
<ul style="list-style-type: none"> Uses the additive inverse property with rational numbers Performs operations on complex numbers and expresses the results in simplest form Performs basic operations on matrices Uses factor and multiple concepts to solve difficult problems 	<ul style="list-style-type: none"> Performs operations on complex numbers and expresses the results in simplest form
Extend and Use Properties	Extend and Use Properties
<ul style="list-style-type: none"> Simplifies rational expressions with exponents Simplifies radical expressions Uses expressions with absolute value to represent situations Uses fractional and negative exponents as optional ways of representing problem situations (e.g., $27^{2/3} = (27^{1/3})^2 = 9$) 	<ul style="list-style-type: none"> Simplifies rational expressions with exponents Simplifies rational expressions with negative exponents
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> i square root of -1	<i>New Signs and Symbols:</i> None

Explanatory Notes

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Skills and Concepts to Develop (50% Probability*) < 161	Skills and Concepts to Introduce (27% Probability*) 161 - 170
Geometric Measurement and Dimension <ul style="list-style-type: none"> • Identifies and names a circle • Identifies spatial sense concepts (e.g., outside, inside, between, over, under, above, below, behind, in front, middle) 	Geometric Measurement and Dimension <ul style="list-style-type: none"> • Tells time to the nearest hour • Compares objects (shorter, longer) • Estimates and measures length of an object to the nearest inch using a picture of a ruler • Measures length with customary measures to the inch mark • Compares open and closed figures • Sorts solid figures and objects according to attributes • Identifies position of shapes (e.g., inside, outside, between) • Measures length with metric measures to the centimeter mark • Tells time to the nearest half hour • Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle • Identifies sides and vertices of polygons • Identifies and names a cone
Congruence, Similarity, Transformations, & Trig	Congruence, Similarity, Transformations, & Trig
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> corner, flat
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> : used with time

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) < 161	Skills and Concepts to Develop (50% Probability*) 161 - 170	Skills and Concepts to Introduce (27% Probability*) 171 - 180
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Identifies and names a circle Identifies spatial sense concepts (e.g., outside, inside, between, over, under, above, below, behind, in front, middle) 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Tells time to the nearest hour Compares objects (shorter, longer) Estimates and measures length of an object to the nearest inch using a picture of a ruler Measures length with customary measures to the inch mark Compares open and closed figures Sorts solid figures and objects according to attributes Identifies position of shapes (e.g., inside, outside, between) Measures length with metric measures to the centimeter mark Tells time to the nearest half hour Identifies and names a triangle Identifies and names a square Identifies and names a rectangle Identifies sides and vertices of polygons Identifies and names a cone 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Determines the area of irregular shapes by counting square units Estimates and measures length of an object to the nearest centimeter using a picture of a ruler Measures length with customary measures to the inch mark Tells time to the nearest hour Tells time to the nearest half hour Tells time to the nearest 5 minutes Identifies and names a triangle Identifies and names a square Identifies and names a cube Recognizes geometric shapes in real-world objects
<p>Congruence, Similarity, Transformations, & Trig</p>	<p>Congruence, Similarity, Transformations, & Trig</p>	<p>Congruence, Similarity, Transformations, & Trig</p>
		<ul style="list-style-type: none"> Identifies figures that are similar
<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> corner, flat</p>	<p><i>New Vocabulary:</i> geometric figure, morning, ray, similar</p>
<p><i>New Signs and Symbols:</i> None</p>	<p><i>New Signs and Symbols:</i> : used with time</p>	<p><i>New Signs and Symbols:</i> a.m., p.m.</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Tells time to the nearest hour • Compares objects (shorter, longer) • Estimates and measures length of an object to the nearest inch using a picture of a ruler • Measures length with customary measures to the inch mark • Compares open and closed figures • Sorts solid figures and objects according to attributes • Identifies position of shapes (e.g., inside, outside, between) • Measures length with metric measures to the centimeter mark • Tells time to the nearest half hour • Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle • Identifies sides and vertices of polygons • Identifies and names a cone 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the area of irregular shapes by counting square units • Estimates and measures length of an object to the nearest centimeter using a picture of a ruler • Measures length with customary measures to the inch mark • Tells time to the nearest hour • Tells time to the nearest half hour • Tells time to the nearest 5 minutes • Identifies and names a triangle • Identifies and names a square • Identifies and names a cube • Recognizes geometric shapes in real-world objects 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Selects and uses the appropriate type and size of unit in customary system (length) • Measures length with non-standard units • Uses a variety of non-standard units to measure the same length • Identifies the correct time, given the words, and vice versa • Determines elapsed clock time • Determines elapsed time under 1 hour or to the hour • Determines elapsed time involving whole hours, whole days, whole years • Tells time to the nearest 5 minutes • Determines the perimeter of a figure where all sides are labeled • Determines the area of irregular shapes by counting square units • Classifies polygons by sides and vertices • Identifies and names a cube • Identifies and names a sphere
<p>Congruence, Similarity, Transformations, & Trig</p>	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies figures that are similar 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies congruent figures • Identifies figures that are similar • Identifies plane figures with line symmetry • Identifies transformations of plane figures (rotations/turns)
<p><i>New Vocabulary:</i> corner, flat</p>	<p><i>New Vocabulary:</i> geometric figure, morning, ray, similar</p>	<p><i>New Vocabulary:</i> clock, estimation, half past, how much time, noon, o'clock, quarter past, quarter to, symmetry, what time</p>
<p><i>New Signs and Symbols:</i> : used with time</p>	<p><i>New Signs and Symbols:</i> a.m., p.m.</p>	<p><i>New Signs and Symbols:</i> in. inch, : used with time, : used with time</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Determines the area of irregular shapes by counting square units Estimates and measures length of an object to the nearest centimeter using a picture of a ruler Measures length with customary measures to the inch mark Tells time to the nearest hour Tells time to the nearest half hour Tells time to the nearest 5 minutes Identifies and names a triangle Identifies and names a square Identifies and names a cube Recognizes geometric shapes in real-world objects 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Selects and uses the appropriate type and size of unit in customary system (length) Measures length with non-standard units Uses a variety of non-standard units to measure the same length Identifies the correct time, given the words, and vice versa Determines elapsed clock time Determines elapsed time under 1 hour or to the hour Determines elapsed time involving whole hours, whole days, whole years Tells time to the nearest 5 minutes Determines the perimeter of a figure where all sides are labeled Determines the area of irregular shapes by counting square units Classifies polygons by sides and vertices Identifies and names a cube Identifies and names a sphere 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Selects and uses the appropriate type and size of unit in customary system (length) Measures length with non-standard units Identifies the correct time, given the words, and vice versa Determines elapsed clock time Tells time to the nearest quarter hour Determines elapsed time involving whole hours, whole days, whole years Tells time to the nearest 1 minute Solves simple problems involving elapsed time, with the conversion of hours Determines the perimeter of a figure where all sides are labeled Determines the perimeter of a figure where some sides are labeled Solves simple problems involving the perimeter of squares, rectangles, or triangles Estimates the area of rectangles using square units Identifies lines Identifies parallel lines Uses models to compare angles relative to right angles Identifies right angles Identifies corners (vertices) of cubes Identifies the number of faces on rectangular prisms Identifies and names a cylinder Identifies and names a sphere Sorts 2-D shapes and objects according to their attributes Creates a new shape by combining different shapes, or identifies the different shapes that were used to make the original shape Explores maps and relates them to measurements of real distances, using the scale
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Identifies figures that are similar 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Identifies congruent figures Identifies figures that are similar Identifies plane figures with line symmetry Identifies transformations of plane figures (rotations/turns) 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Identifies congruent figures Identifies congruent polygons and their corresponding sides and angles Identifies plane figures with line symmetry Identifies the number of lines of symmetry in plane figures
<p><i>New Vocabulary:</i> geometric figure, morning, ray, similar</p>	<p><i>New Vocabulary:</i> clock, estimation, half past, how much time, noon, o'clock, quarter past, quarter to, symmetry, what time</p>	<p><i>New Vocabulary:</i> face, intersect, kite, large, parallel, vertical line</p>
<p><i>New Signs and Symbols:</i> a.m., p.m.</p>	<p><i>New Signs and Symbols:</i> in. inch, : used with time, : used with time</p>	<p><i>New Signs and Symbols:</i> \$ dollar sign, ft feet, " inches, = is equal to, m meter/metre, yd yard</p>

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Selects and uses the appropriate type and size of unit in customary system (length) • Measures length with non-standard units • Uses a variety of non-standard units to measure the same length • Identifies the correct time, given the words, and vice versa • Determines elapsed clock time • Determines elapsed time under 1 hour or to the hour • Determines elapsed time involving whole hours, whole days, whole years • Tells time to the nearest 5 minutes • Determines the perimeter of a figure where all sides are labeled • Determines the area of irregular shapes by counting square units • Classifies polygons by sides and vertices • Identifies and names a cube • Identifies and names a sphere 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Selects and uses the appropriate type and size of unit in customary system (length) • Measures length with non-standard units • Identifies the correct time, given the words, and vice versa • Determines elapsed clock time • Tells time to the nearest quarter hour • Determines elapsed time involving whole hours, whole days, whole years • Tells time to the nearest 1 minute • Solves simple problems involving elapsed time, with the conversion of hours • Determines the perimeter of a figure where all sides are labeled • Determines the perimeter of a figure where some sides are labeled • Solves simple problems involving the perimeter of squares, rectangles, or triangles • Estimates the area of rectangles using square units • Identifies lines • Identifies parallel lines • Uses models to compare angles relative to right angles • Identifies right angles • Identifies corners (vertices) of cubes • Identifies the number of faces on rectangular prisms • Identifies and names a cylinder • Identifies and names a sphere • Sorts 2-D shapes and objects according to their attributes • Creates a new shape by combining different shapes, or identifies the different shapes that were used to make the original shape • Explores maps and relates them to measurements of real distances, using the scale 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system • Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks) • Uses the appropriate unit of measure for length • Measures length to the nearest centimeter • Solves simple problems involving elapsed time, with the conversion of hours • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Determines the perimeter of a figure where some sides are labeled • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Estimates the area of rectangles using square units • Determines the area of irregular shapes with partial square units • Identifies situations where it is appropriate to calculate area • Estimates and finds volume of a figure using cubic units • Uses basic indirect methods to estimate measurements (grids for area of irregular figures) • Identifies parallel lines • Uses models to compare angles relative to right angles • Identifies and names a parallelogram • Identifies and names a trapezoid • Classifies polygons by number of sides • Classifies polygons by sides and angles • Identifies corners (vertices) of cubes • Classifies cubes by their properties (e.g., edges with equal lengths, faces with equal areas and congruent shapes, right angle corners) • Identifies a cube from a net • Identifies and names a cylinder
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies congruent figures • Identifies figures that are similar • Identifies plane figures with line symmetry • Identifies transformations of plane figures (rotations/turns) 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies congruent figures • Identifies congruent polygons and their corresponding sides and angles • Identifies plane figures with line symmetry • Identifies the number of lines of symmetry in plane figures 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies congruent polygons and their corresponding sides and angles • Classifies plane figures by the number of lines of symmetry
<p><i>New Vocabulary:</i> clock, estimation, half past, how much time, noon, o'clock, quarter past, quarter to, symmetry, what time</p>	<p><i>New Vocabulary:</i> face, intersect, kite, large, parallel, vertical line</p>	<p><i>New Vocabulary:</i> coordinate point, cubic centimeter, cubic unit, edge, larger, parallel line, rectangular box, regular polygon, trapezoid</p>
<p><i>New Signs and Symbols:</i> in. inch, : used with time, : used with time</p>	<p><i>New Signs and Symbols:</i> \$ dollar sign, ft feet, " inches, = is equal to, m meter/metre, yd yard</p>	<p><i>New Signs and Symbols:</i> () ordered pair, cm centimeter/centimetre, ° degrees</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Selects and uses the appropriate type and size of unit in customary system (length) • Measures length with non-standard units • Identifies the correct time, given the words, and vice versa • Determines elapsed clock time • Tells time to the nearest quarter hour • Determines elapsed time involving whole hours, whole days, whole years • Tells time to the nearest 1 minute • Solves simple problems involving elapsed time, with the conversion of hours • Determines the perimeter of a figure where all sides are labeled • Determines the perimeter of a figure where some sides are labeled • Solves simple problems involving the perimeter of squares, rectangles, or triangles • Estimates the area of rectangles using square units • Identifies lines • Identifies parallel lines • Uses models to compare angles relative to right angles • Identifies right angles • Identifies corners (vertices) of cubes • Identifies the number of faces on rectangular prisms • Identifies and names a cylinder • Identifies and names a sphere • Sorts 2-D shapes and objects according to their attributes • Creates a new shape by combining different shapes, or identifies the different shapes that were used to make the original shape • Explores maps and relates them to measurements of real distances, using the scale 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system • Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks) • Uses the appropriate unit of measure for length • Measures length to the nearest centimeter • Solves simple problems involving elapsed time, with the conversion of hours • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Determines the perimeter of a figure where some sides are labeled • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Estimates the area of rectangles using square units • Determines the area of irregular shapes with partial square units • Identifies situations where it is appropriate to calculate area • Estimates and finds volume of a figure using cubic units • Uses basic indirect methods to estimate measurements (grids for area of irregular figures) • Identifies parallel lines • Uses models to compare angles relative to right angles • Identifies and names a parallelogram • Identifies and names a trapezoid • Classifies polygons by number of sides • Classifies polygons by sides and angles • Identifies corners (vertices) of cubes • Classifies cubes by their properties (e.g., edges with equal lengths, faces with equal areas and congruent shapes, right angle corners) • Identifies a cube from a net • Identifies and names a cylinder 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system • Uses the appropriate unit of measure for length • Solves difficult problems involving elapsed time, with the conversion of hours • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Measures angles using a protractor • Determines the perimeter of a figure using non-standard units • Solves problems involving the perimeter of squares, rectangles, or triangles • Finds the perimeter of a polygon using a formula • Describes the change in perimeter when dimensions of an object are altered • Determines the diameter, given the radius, and vice versa • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Determines the area of irregular shapes with partial square units • Estimates and finds volume of a figure using cubic units • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) • Identifies rays • Identifies perpendicular lines • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies and names a trapezoid • Identifies and names a rhombus • Identifies and names a quadrilateral • Classifies polygons by type of angle • Identifies corners (vertices) of cubes • Identifies the net which makes a cube-like (open box) figure • Predicts the number of edges on rectangular prisms • Predicts and verifies the effects of combining or subdividing basic shapes • Determines an appropriate scale for representing a distance on a map
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies congruent figures • Identifies congruent polygons and their corresponding sides and angles 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies congruent polygons and their corresponding sides and angles • Classifies plane figures by the number of lines of symmetry 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies similar and congruent triangles • Uses similar figures to construct ratios and solve for a missing side

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
Congruence, Similarity, Transformations, & Trig	Congruence, Similarity, Transformations, & Trig	Congruence, Similarity, Transformations, & Trig
<ul style="list-style-type: none"> Identifies plane figures with line symmetry Identifies the number of lines of symmetry in plane figures 		<ul style="list-style-type: none"> Identifies geometric transformations (rotations) Identifies geometric transformations (translations)
<i>New Vocabulary:</i> face, intersect, kite, large, parallel, vertical line	<i>New Vocabulary:</i> coordinate point, cubic centimeter, cubic unit, edge, larger, parallel line, rectangular box, regular polygon, trapezoid	<i>New Vocabulary:</i> acute angle, congruent angle, cord, dilation, how long, obtuse angle, straight angle, transformation, union
<i>New Signs and Symbols:</i> \$ dollar sign, ft feet, " inches, = is equal to, m meter/metre, yd yard	<i>New Signs and Symbols:</i> () ordered pair, cm centimeter/centimetre, ° degrees	<i>New Signs and Symbols:</i> ∠ angle, angle marker (arc), hr hour, ↓ measurement span down, ← measurement span left, → measurement span right, ↑ measurement span up, min minute, mm millimeter/millimetre, • point, right angle marker

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system • Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks) • Uses the appropriate unit of measure for length • Measures length to the nearest centimeter • Solves simple problems involving elapsed time, with the conversion of hours • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Determines the perimeter of a figure where some sides are labeled • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Estimates the area of rectangles using square units • Determines the area of irregular shapes with partial square units • Identifies situations where it is appropriate to calculate area • Estimates and finds volume of a figure using cubic units • Uses basic indirect methods to estimate measurements (grids for area of irregular figures) • Identifies parallel lines • Uses models to compare angles relative to right angles • Identifies and names a parallelogram • Identifies and names a trapezoid • Classifies polygons by number of sides • Classifies polygons by sides and angles • Identifies corners (vertices) of cubes • Classifies cubes by their properties (e.g., edges with equal lengths, faces with equal areas and congruent shapes, right angle corners) • Identifies a cube from a net • Identifies and names a cylinder 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system • Uses the appropriate unit of measure for length • Solves difficult problems involving elapsed time, with the conversion of hours • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Measures angles using a protractor • Determines the perimeter of a figure using non-standard units • Solves problems involving the perimeter of squares, rectangles, or triangles • Finds the perimeter of a polygon using a formula • Describes the change in perimeter when dimensions of an object are altered • Determines the diameter, given the radius, and vice versa • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Determines the area of irregular shapes with partial square units • Estimates and finds volume of a figure using cubic units • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) • Identifies rays • Identifies perpendicular lines • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies and names a trapezoid • Identifies and names a rhombus • Identifies and names a quadrilateral • Classifies polygons by type of angle • Identifies corners (vertices) of cubes • Identifies the net which makes a cube-like (open box) figure • Predicts the number of edges on rectangular prisms • Predicts and verifies the effects of combining or subdividing basic shapes • Determines an appropriate scale for representing a distance on a map 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Solves simple problems involving the area of a square or rectangle • Determines coordinates of geometric figures in the first quadrant • Solves difficult problems involving elapsed time, with the conversion of hours • Determines the perimeter of a figure using non-standard units • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems involving the perimeter of irregular or complex shapes • Describes the change in perimeter when dimensions of an object are altered • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units) • Calculates the base or height of a parallelogram, given the area and formula (metric) • Determines the area of irregular shapes (customary units) • Calculates area and perimeter of a rectangle (customary units) • Calculates the volume of rectangular solids • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) • Identifies rays • Determines which lines are perpendicular (analysis) • Identifies and determines missing angle measures for supplementary angles • Identifies acute angles • Recognizes the interior angle relationships of triangles • Classifies equilateral triangles • Identifies and names a rhombus • Identifies and names a quadrilateral • Compares polygons by properties • Identifies properties of quadrilaterals • Classifies polygons by type of angle • Identifies the number of edges on rectangular prisms • Identifies properties of similar figures • Determines an appropriate scale for representing an object in a scale drawing

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Identifies congruent polygons and their corresponding sides and angles • Classifies plane figures by the number of lines of symmetry 	Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Identifies similar and congruent triangles • Uses similar figures to construct ratios and solve for a missing side • Identifies geometric transformations (rotations) • Identifies geometric transformations (translations) 	Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Identifies properties of parallel and perpendicular lines • Uses similarity to solve problems using scale drawings • Uses similar figures to construct ratios and solve for a missing side • Uses similar triangles to construct ratios and solve for a missing side • Identifies geometric transformations (rotations) • Identifies geometric transformations (translations)
<i>New Vocabulary:</i> coordinate point, cubic centimeter, cubic unit, edge, larger, parallel line, rectangular box, regular polygon, trapezoid	<i>New Vocabulary:</i> acute angle, congruent angle, cord, dilation, how long, obtuse angle, straight angle, transformation, union	<i>New Vocabulary:</i> cubic meter, cubic millimeter, interior angle, long, scale factor
<i>New Signs and Symbols:</i> () ordered pair, cm centimeter/centimetre, ° degrees	<i>New Signs and Symbols:</i> ∠ angle, angle marker (arc), hr hour, ↓ measurement span down, ← measurement span left, → measurement span right, ↑ measurement span up, min minute, mm millimeter/millimetre, • point, right angle marker	<i>New Signs and Symbols:</i> ' feet, h height, = is equal to, l length, × multiplication, : ratio, segment overbar, V volume, w width

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system • Uses the appropriate unit of measure for length • Solves difficult problems involving elapsed time, with the conversion of hours • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Measures angles using a protractor • Determines the perimeter of a figure using non-standard units • Solves problems involving the perimeter of squares, rectangles, or triangles • Finds the perimeter of a polygon using a formula • Describes the change in perimeter when dimensions of an object are altered • Determines the diameter, given the radius, and vice versa • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Determines the area of irregular shapes with partial square units • Estimates and finds volume of a figure using cubic units • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) • Identifies rays • Identifies perpendicular lines • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies and names a trapezoid • Identifies and names a rhombus • Identifies and names a quadrilateral • Classifies polygons by type of angle • Identifies corners (vertices) of cubes • Identifies the net which makes a cube-like (open box) figure • Identifies the number of edges on rectangular prisms • Predicts and verifies the effects of combining or subdividing basic shapes • Determines an appropriate scale for representing a distance on a map 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Solves simple problems involving the area of a square or rectangle • Determines coordinates of geometric figures in the first quadrant • Solves difficult problems involving elapsed time, with the conversion of hours • Determines the perimeter of a figure using non-standard units • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems involving the perimeter of irregular or complex shapes • Describes the change in perimeter when dimensions of an object are altered • Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units) • Calculates the base or height of a parallelogram, given the area and formula (metric) • Determines the area of irregular shapes (customary units) • Calculates area and perimeter of a rectangle (customary units) • Calculates the volume of rectangular solids • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) • Identifies rays • Determines which lines are perpendicular (analysis) • Identifies and determines missing angle measures for supplementary angles • Identifies acute angles • Recognizes the interior angle relationships of triangles • Classifies equilateral triangles • Identifies and names a rhombus • Identifies and names a quadrilateral • Compares polygons by properties • Identifies properties of quadrilaterals • Classifies polygons by type of angle • Identifies the number of edges on rectangular prisms • Identifies properties of similar figures • Determines an appropriate scale for representing an object in a scale drawing 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Solves problems involving the perimeter of irregular or complex shapes • Describes the change in perimeter when dimensions of an object are altered • Identifies the formula for perimeter with a variable • Determines the circumference when given the diameter or radius (or vice versa) • Determines the circumference when given the area of a circle (or vice versa) • Knows the relationship between radius, diameter, and circumference • Compares area of numerous triangles • Determines the area of a triangle drawn on a grid • Determines the area of a triangle, given the formula • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units) • Describes the change in area of a rectangle when dimensions of an object are altered • Solves simple problems involving the area of a square or rectangle • Determines the area of a parallelogram, given a labeled diagram • Calculates the base or height of a parallelogram, given the area and formula (metric) • Determines the area of a trapezoid, given the formula (metric units) • Determines the area of irregular shapes (customary units) • Understands the procedure for finding the area and surface area of figures • Calculates the volume of rectangular solids • Calculates the length, width, or height of a rectangular prism, given the area (customary units) • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) • Determines which lines are perpendicular (analysis) • Uses properties of angles and figures to solve algebraic problems • Recognizes the interior angle relationships of triangles • Classifies isosceles triangles • Classifies scalene triangles • Identifies properties of circles • Compares polygons by properties • Identifies properties of quadrilaterals

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
Geometric Measurement and Dimension	Geometric Measurement and Dimension	Geometric Measurement and Dimension <ul style="list-style-type: none"> • Explores maps and relates them to measurements of real distances, using proportional reasoning • Determines an appropriate scale for representing an object in a scale drawing
Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Identifies similar and congruent triangles • Uses similar figures to construct ratios and solve for a missing side • Identifies geometric transformations (rotations) • Identifies geometric transformations (translations) 	Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Identifies properties of parallel and perpendicular lines • Uses similarity to solve problems using scale drawings • Uses similar figures to construct ratios and solve for a missing side • Uses similar triangles to construct ratios and solve for a missing side • Identifies geometric transformations (rotations) • Identifies geometric transformations (translations) 	Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles • Identifies properties of congruent triangles • Solves problems involving properties of congruent triangles • Uses similarity to solve problems using scale drawings • Uses similar triangles to construct ratios and solve for a missing side • Identifies geometric transformations (dilations) • Determines whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation
<i>New Vocabulary:</i> acute angle, congruent angle, cord, dilation, how long, obtuse angle, straight angle, transformation, union	<i>New Vocabulary:</i> cubic meter, cubic millimeter, interior angle, long, scale factor	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> ∠ angle, angle marker (arc), hr hour, ↓ measurement span down, ← measurement span left, → measurement span right, ↑ measurement span up, min minute, mm millimeter/millimetre, • point, right angle marker	<i>New Signs and Symbols:</i> ' feet, h height, = is equal to, l length, x multiplication, : ratio, segment overbar, V volume, w width	<i>New Signs and Symbols:</i> () order of operations, + addition, C circumference, congruent segment symbol, d diameter, ≅ is congruent to, x multiplication, P perimeter, π pi, r radius, Δ triangle

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Solves simple problems involving the area of a square or rectangle Determines coordinates of geometric figures in the first quadrant Solves difficult problems involving elapsed time, with the conversion of hours Determines the perimeter of a figure using non-standard units Solves problems involving the perimeter of squares, rectangles, or triangles Solves problems involving the perimeter of irregular or complex shapes Describes the change in perimeter when dimensions of an object are altered Describes the change in area of a triangle when 1 dimension of an object is altered (metric units) Calculates the area of a rectangle, given labeled sides (customary units) Determines the length or width of a rectangle, given the area (metric units) Calculates the base or height of a parallelogram, given the area and formula (metric) Determines the area of irregular shapes (customary units) Calculates area and perimeter of a rectangle (customary units) Calculates the volume of rectangular solids Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) Identifies rays Determines which lines are perpendicular (analysis) Identifies and determines missing angle measures for supplementary angles Identifies acute angles Recognizes the interior angle relationships of triangles Classifies equilateral triangles Identifies and names a rhombus Identifies and names a quadrilateral Compares polygons by properties Identifies properties of quadrilaterals Classifies polygons by type of angle Identifies the number of edges on rectangular prisms Identifies properties of similar figures Determines an appropriate scale for representing an object in a scale drawing 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Solves problems involving the perimeter of irregular or complex shapes Describes the change in perimeter when dimensions of an object are altered Identifies the formula for perimeter with a variable Determines the circumference when given the diameter or radius (or vice versa) Determines the circumference when given the area of a circle (or vice versa) Knows the relationship between radius, diameter, and circumference Compares area of numerous triangles Determines the area of a triangle drawn on a grid Determines the area of a triangle, given the formula Calculates the area of a rectangle, given labeled sides (customary units) Determines the length or width of a rectangle, given the area (metric units) Describes the change in area of a rectangle when dimensions of an object are altered Solves simple problems involving the area of a square or rectangle Determines the area of a parallelogram, given a labeled diagram Calculates the base or height of a parallelogram, given the area and formula (metric) Determines the area of a trapezoid, given the formula (metric units) Determines the area of irregular shapes (customary units) Understands the procedure for finding the area and surface area of figures Calculates the volume of rectangular solids Calculates the length, width, or height of a rectangular prism, given the area (customary units) Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) Determines which lines are perpendicular (analysis) Uses properties of angles and figures to solve algebraic problems Recognizes the interior angle relationships of triangles Classifies isosceles triangles Classifies scalene triangles Identifies properties of circles Compares polygons by properties Identifies properties of quadrilaterals 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Determines the midpoint of a line on a coordinate grid Determines the figure when plotting ordered pairs Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines) Determines the perimeter of a figure when plotting ordered pairs Determines the circumference when given the diameter or radius (or vice versa) Determines the circumference when given the area of a circle (or vice versa) Determines the area of a triangle without the formula Determines the area of a figure when plotting ordered pairs without a grid Solves problems involving area of a rectangle and converts to larger or smaller units (customary) Describes the change in area of a rectangle when dimensions of an object are altered Determines the area of a parallelogram, given a labeled diagram Solves problems involving area of a circle Determines the diameter or radius when given the area of a circle (metric units) Determines the area of irregular shapes (customary units) Calculates the area of irregular shapes (metric units) Solves complex problems involving inscribed figures Determines the surface area of rectangular solids Determines the surface area of a cylinder, given a formula (customary units) Determines the effects of changing dimensions on volume (no units) Identifies and determines missing angle measures for complementary angles Uses properties of angles and figures to solve algebraic problems Uses properties of angles to solve mathematical problems Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side Uses the Pythagorean theorem to solve problems Uses Pythagorean triplets to solve problems

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
Geometric Measurement and Dimension	Geometric Measurement and Dimension	Geometric Measurement and Dimension
	<ul style="list-style-type: none"> • Explores maps and relates them to measurements of real distances, using proportional reasoning • Determines an appropriate scale for representing an object in a scale drawing 	
Congruence, Similarity, Transformations, & Trig	Congruence, Similarity, Transformations, & Trig	Congruence, Similarity, Transformations, & Trig
<ul style="list-style-type: none"> • Identifies properties of parallel and perpendicular lines • Uses similarity to solve problems using scale drawings • Uses similar figures to construct ratios and solve for a missing side • Uses similar triangles to construct ratios and solve for a missing side • Identifies geometric transformations (rotations) • Identifies geometric transformations (translations) 	<ul style="list-style-type: none"> • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles • Identifies properties of congruent triangles • Solves problems involving properties of congruent triangles • Uses similarity to solve problems using scale drawings • Uses similar triangles to construct ratios and solve for a missing side • Identifies geometric transformations (dilations) • Determines whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation 	<ul style="list-style-type: none"> • Uses an indirect method to measure the height of an inaccessible object • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles • Identifies corresponding and alternate exterior/interior angles • Recognizes the exterior angle relationships of triangles • Determines whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation • Determines the coordinates of the dilation of a figure on a coordinate graph • Determines the new coordinates of a transformed geometric figure
<i>New Vocabulary:</i> cubic meter, cubic millimeter, interior angle, long, scale factor	<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> incline, transversal, y-axis
<i>New Signs and Symbols:</i> ' feet, h height, = is equal to, l length, x multiplication, : ratio, segment overbar, V volume, w width	<i>New Signs and Symbols:</i> () order of operations, + addition, C circumference, congruent segment symbol, d diameter, ≅ is congruent to, x multiplication, P perimeter, π pi, r radius, Δ triangle	<i>New Signs and Symbols:</i> A area, b base, km kilometer/kilometre, ↔ line symbol, - negative number, parallel symbol, → ray symbol, sq square

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Solves problems involving the perimeter of irregular or complex shapes Describes the change in perimeter when dimensions of an object are altered Identifies the formula for perimeter with a variable Determines the circumference when given the diameter or radius (or vice versa) Determines the circumference when given the area of a circle (or vice versa) Knows the relationship between radius, diameter, and circumference Compares area of numerous triangles Determines the area of a triangle drawn on a grid Determines the area of a triangle, given the formula Calculates the area of a rectangle, given labeled sides (customary units) Determines the length or width of a rectangle, given the area (metric units) Describes the change in area of a rectangle when dimensions of an object are altered Solves simple problems involving the area of a square or rectangle Determines the area of a parallelogram, given a labeled diagram Calculates the base or height of a parallelogram, given the area and formula (metric) Determines the area of a trapezoid, given the formula (metric units) Determines the area of irregular shapes (customary units) Understands the procedure for finding the area and surface area of figures Calculates the volume of rectangular solids Calculates the length, width, or height of a rectangular prism, given the area (customary units) Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units) Determines which lines are perpendicular (analysis) Uses properties of angles and figures to solve algebraic problems Recognizes the interior angle relationships of triangles Classifies isosceles triangles Classifies scalene triangles Identifies properties of circles Compares polygons by properties Identifies properties of quadrilaterals 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Determines the midpoint of a line on a coordinate grid Determines the figure when plotting ordered pairs Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines) Determines the perimeter of a figure when plotting ordered pairs Determines the circumference when given the diameter or radius (or vice versa) Determines the circumference when given the area of a circle (or vice versa) Determines the area of a triangle without the formula Determines the area of a figure when plotting ordered pairs without a grid Solves problems involving area of a rectangle and converts to larger or smaller units (customary) Describes the change in area of a rectangle when dimensions of an object are altered Determines the area of a parallelogram, given a labeled diagram Solves problems involving area of a circle Determines the diameter or radius when given the area of a circle (metric units) Determines the area of irregular shapes (customary units) Calculates the area of irregular shapes (metric units) Solves complex problems involving inscribed figures Determines the surface area of rectangular solids Determines the surface area of a cylinder, given a formula (customary units) Determines the effects of changing dimensions on volume (no units) Identifies and determines missing angle measures for complementary angles Uses properties of angles and figures to solve algebraic problems Uses properties of angles to solve mathematical problems Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side Uses the Pythagorean theorem to solve problems Uses Pythagorean triplets to solve problems 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Using the slope of an equation, identifies parallel and perpendicular lines Determines the slope of perpendicular lines Determines the distance between two points Determines the midpoint of a line on a coordinate grid Determines an endpoint of a line segment on a coordinate grid, given the midpoint and the other endpoint Determines the circumference when given the area of a circle (or vice versa) Determines the area of a figure when plotting ordered pairs without a grid Determines the area of a parallelogram, given a labeled diagram Calculate the height of a trapezoid, given the area, without the formula given (metric) Determines the diameter or radius when given the area of a circle (metric units) Solves problems involving complex figures (e.g., triangle, parallelogram) Solves complex problems involving inscribed figures Solves problems comparing area to perimeter (analysis) Solves real-world problems involving surface area Calculates the length of one side of a cube, given the volume (customary units) Determines the volume of a cylinder Calculates the radius of a sphere, given the volume and formula (metric units) Solves real-world problems comparing volumes of figures Uses reasoning to verify properties of parallel and perpendicular lines Uses properties of angles to solve mathematical problems Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side Solves problems involving properties of triangles Uses number of sides to find angle measures of polygons Classifies polygons by properties Uses the Pythagorean theorem to solve problems Uses Pythagorean triplets to solve problems

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Explores maps and relates them to measurements of real distances, using proportional reasoning • Determines an appropriate scale for representing an object in a scale drawing 	<p>Geometric Measurement and Dimension</p>	<p>Geometric Measurement and Dimension</p>
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles • Identifies properties of congruent triangles • Solves problems involving properties of congruent triangles • Uses similarity to solve problems using scale drawings • Uses similar triangles to construct ratios and solve for a missing side • Identifies geometric transformations (dilations) • Determines whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Uses an indirect method to measure the height of an inaccessible object • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles • Identifies corresponding and alternate exterior/interior angles • Recognizes the exterior angle relationships of triangles • Determines whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation • Determines the coordinates of the dilation of a figure on a coordinate graph • Determines the new coordinates of a transformed geometric figure 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies corresponding and alternate exterior/interior angles • Recognizes the exterior angle relationships of triangles • Verifies congruency of triangles using ASA, SAS, SSS, or AAS • Solves problems involving similar polygons (not triangles) • Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem) • Uses picture representations to identify symmetry of plane figures with respect to a point or line • Determines the coordinates of the dilation of a figure on a coordinate graph
<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> incline, transversal, y-axis</p>	<p><i>New Vocabulary:</i> rotational symmetry</p>
<p><i>New Signs and Symbols:</i> () order of operations, + addition, C circumference, congruent segment symbol, d diameter, \cong is congruent to, \times multiplication, P perimeter, π pi, r radius, \triangle triangle</p>	<p><i>New Signs and Symbols:</i> A area, b base, km kilometer/kilometre, \leftrightarrow line symbol, - negative number, parallel symbol, \rightarrow ray symbol, sq square</p>	<p><i>New Signs and Symbols:</i> AAS angle angle side, ASA angle side angle, $^\circ$ degrees, \perp perpendicular to, SAS side angle side, square root symbol, SSA side side angle, SSS side side side, - subtraction</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) 261 - 270
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Determines the midpoint of a line on a coordinate grid • Determines the figure when plotting ordered pairs • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines) • Determines the perimeter of a figure when plotting ordered pairs • Determines the circumference when given the diameter or radius (or vice versa) • Determines the circumference when given the area of a circle (or vice versa) • Determines the area of a triangle without the formula • Determines the area of a figure when plotting ordered pairs without a grid • Solves problems involving area of a rectangle and converts to larger or smaller units (customary) • Describes the change in area of a rectangle when dimensions of an object are altered • Determines the area of a parallelogram, given a labeled diagram • Solves problems involving area of a circle • Determines the diameter or radius when given the area of a circle (metric units) • Determines the area of irregular shapes (customary units) • Calculates the area of irregular shapes (metric units) • Solves complex problems involving inscribed figures • Determines the surface area of rectangular solids • Determines the surface area of a cylinder, given a formula (customary units) • Determines the effects of changing dimensions on volume (no units) • Identifies and determines missing angle measures for complementary angles • Uses properties of angles and figures to solve algebraic problems • Uses properties of angles to solve mathematical problems • Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side • Uses the Pythagorean theorem to solve problems • Uses Pythagorean triplets to solve problems 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Using the slope of an equation, identifies parallel and perpendicular lines • Determines the slope of perpendicular lines • Determines the distance between two points • Determines the midpoint of a line on a coordinate grid • Determines an endpoint of a line segment on a coordinate grid, given the midpoint and the other endpoint • Determines the circumference when given the area of a circle (or vice versa) • Determines the area of a figure when plotting ordered pairs without a grid • Determines the area of a parallelogram, given a labeled diagram • Calculate the height of a trapezoid, given the area, without the formula given (metric) • Determines the diameter or radius when given the area of a circle (metric units) • Solves problems involving complex figures (e.g., triangle, parallelogram) • Solves complex problems involving inscribed figures • Solves problems comparing area to perimeter (analysis) • Solves real-world problems involving surface area • Calculates the length of one side of a cube, given the volume (customary units) • Determines the volume of a cylinder • Calculates the radius of a sphere, given the volume and formula (metric units) • Solves real-world problems comparing volumes of figures • Uses reasoning to verify properties of parallel and perpendicular lines • Uses properties of angles to solve mathematical problems • Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side • Solves problems involving properties of triangles • Uses number of sides to find angle measures of polygons • Classifies polygons by properties • Uses the Pythagorean theorem to solve problems • Uses Pythagorean triplets to solve problems 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Using the slope of an equation, identifies parallel and perpendicular lines • Determines the slope of perpendicular lines • Defines pi and knows common estimates (3.14 and 22/7) • Solves problems involving complex figures (e.g., triangle, parallelogram) • Solves real-world problems involving surface area • Uses properties of angles to solve mathematical problems • Uses the properties of 30-60-90 triangles to solve problems
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Uses an indirect method to measure the height of an inaccessible object 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Identifies corresponding and alternate exterior/interior angles • Recognizes the exterior angle relationships of triangles 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Determines sine of an angle in a given right triangle • Determines cosine of an angle in a given right triangle

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) 261 - 270
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles Identifies corresponding and alternate exterior/interior angles Recognizes the exterior angle relationships of triangles Determines whether a given pair of figures on a coordinate plane represents a translation, reflection, rotation, or dilation Determines the coordinates of the dilation of a figure on a coordinate graph Determines the new coordinates of a transformed geometric figure 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Verifies congruency of triangles using ASA, SAS, SSS, or AAS Solves problems involving similar polygons (not triangles) Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem) Uses picture representations to identify symmetry of plane figures with respect to a point or line Determines the coordinates of the dilation of a figure on a coordinate graph 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Determines tangent of an angle in a given triangle
<p><i>New Vocabulary:</i> incline, transversal, y-axis</p>	<p><i>New Vocabulary:</i> rotational symmetry</p>	<p><i>New Vocabulary:</i> trigonometric relationship</p>
<p><i>New Signs and Symbols:</i> A area, b base, km kilometer/kilometre, ↔ line symbol, - negative number, parallel symbol, → ray symbol, sq square</p>	<p><i>New Signs and Symbols:</i> AAS angle angle side, ASA angle side angle, ° degrees, ⊥ perpendicular to, SAS side angle side, square root symbol, SSA side side angle, SSS side side side, - subtraction</p>	<p><i>New Signs and Symbols:</i> cos cosine, sin sine, tan tangent</p>

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Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) 261 - 270	Skills and Concepts to Introduce (27% Probability*) > 270
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Using the slope of an equation, identifies parallel and perpendicular lines Determines the slope of perpendicular lines Determines the distance between two points Determines the midpoint of a line on a coordinate grid Determines an endpoint of a line segment on a coordinate grid, given the midpoint and the other endpoint Determines the circumference when given the area of a circle (or vice versa) Determines the area of a figure when plotting ordered pairs without a grid Determines the area of a parallelogram, given a labeled diagram Calculate the height of a trapezoid, given the area, without the formula given (metric) Determines the diameter or radius when given the area of a circle (metric units) Solves problems involving complex figures (e.g., triangle, parallelogram) Solves complex problems involving inscribed figures Solves problems comparing area to perimeter (analysis) Solves real-world problems involving surface area Calculates the length of one side of a cube, given the volume (customary units) Determines the volume of a cylinder Calculates the radius of a sphere, given the volume and formula (metric units) Solves real-world problems comparing volumes of figures Uses reasoning to verify properties of parallel and perpendicular lines Uses properties of angles to solve mathematical problems Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side Solves problems involving properties of triangles Uses number of sides to find angle measures of polygons Classifies polygons by properties Uses the Pythagorean theorem to solve problems Uses Pythagorean triplets to solve problems 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Using the slope of an equation, identifies parallel and perpendicular lines Determines the slope of perpendicular lines Defines pi and knows common estimates (3.14 and 22/7) Solves problems involving complex figures (e.g., triangle, parallelogram) Solves real-world problems involving surface area Uses properties of angles to solve mathematical problems Uses the properties of 30-60-90 triangles to solve problems 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> Uses geometric constructions to solve problems
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Identifies corresponding and alternate exterior/interior angles Recognizes the exterior angle relationships of triangles 	<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> Determines sine of an angle in a given right triangle Determines cosine of an angle in a given right triangle 	<p>Congruence, Similarity, Transformations, & Trig</p>

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Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) 261 - 270	Skills and Concepts to Introduce (27% Probability*) > 270
Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Verifies congruency of triangles using ASA, SAS, SSS, or AAS • Solves problems involving similar polygons (not triangles) • Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem) • Uses picture representations to identify symmetry of plane figures with respect to a point or line • Determines the coordinates of the dilation of a figure on a coordinate graph 	Congruence, Similarity, Transformations, & Trig <ul style="list-style-type: none"> • Determines tangent of an angle in a given triangle 	Congruence, Similarity, Transformations, & Trig
<i>New Vocabulary:</i> rotational symmetry	<i>New Vocabulary:</i> trigonometric relationship	<i>New Vocabulary:</i> None
<i>New Signs and Symbols:</i> AAS angle angle side, ASA angle side angle, ° degrees, perpendicular to, SAS side angle side, square root symbol, SSA side side angle, SSS side side side, - subtraction	<i>New Signs and Symbols:</i> cos cosine, sin sine, tan tangent	<i>New Signs and Symbols:</i> None

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Skills and concepts to Enhance (73% Probability*) 261 - 270	Skills and Concepts to Develop (50% Probability*) > 270
<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Using the slope of an equation, identifies parallel and perpendicular lines • Determines the slope of perpendicular lines • Defines pi and knows common estimates (3.14 and 22/7) • Solves problems involving complex figures (e.g., triangle, parallelogram) • Solves real-world problems involving surface area • Uses properties of angles to solve mathematical problems • Uses the properties of 30-60-90 triangles to solve problems 	<p>Geometric Measurement and Dimension</p> <ul style="list-style-type: none"> • Uses geometric constructions to solve problems
<p>Congruence, Similarity, Transformations, & Trig</p> <ul style="list-style-type: none"> • Determines sine of an angle in a given right triangle • Determines cosine of an angle in a given right triangle • Determines tangent of an angle in a given triangle 	<p>Congruence, Similarity, Transformations, & Trig</p>
<p><i>New Vocabulary:</i> trigonometric relationship</p>	<p><i>New Vocabulary:</i> None</p>
<p><i>New Signs and Symbols:</i> cos cosine, sin sine, tan tangent</p>	<p><i>New Signs and Symbols:</i> None</p>

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Skills and Concepts to Develop (50% Probability*) < 161	Skills and Concepts to Introduce (27% Probability*) 161 - 170
Interpreting Categorical and Quantitative Data	Interpreting Categorical and Quantitative Data
<ul style="list-style-type: none"> • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) 	<ul style="list-style-type: none"> • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Displays data appropriately - bar graph - scale is 1 to 1 • Compares data from simple graphs (e.g., largest, smallest, most often, least often) • Reads a chart or table - numbers • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often)
Using Sampling and Probability to Make Decisions	Using Sampling and Probability to Make Decisions
<i>New Vocabulary:</i> None	<i>New Vocabulary:</i> dollar, longest, shortest
<i>New Signs and Symbols:</i> None	<i>New Signs and Symbols:</i> = is equal to

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) < 161	Skills and Concepts to Develop (50% Probability*) 161 - 170	Skills and Concepts to Introduce (27% Probability*) 171 - 180
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Displays data appropriately - bar graph - scale is 1 to 1 • Compares data from simple graphs (e.g., largest, smallest, most often, least often) • Reads a chart or table - numbers • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads a simple bar graph - numbers (e.g., how many) • Compares data from simple graphs (e.g., largest, smallest, most often, least often) • Reads a chart or table - numbers • Interprets simple graphs or tables • Interprets data using tally charts • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) • Solves simple problems based on data from pictographs • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Solves simple problems based on data from bar graphs
<p>Using Sampling and Probability to Make Decisions</p>	<p>Using Sampling and Probability to Make Decisions</p>	<p>Using Sampling and Probability to Make Decisions</p>
<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> dollar, longest, shortest</p>	<p><i>New Vocabulary:</i> fewer, taller</p>
<p><i>New Signs and Symbols:</i> None</p>	<p><i>New Signs and Symbols:</i> = is equal to</p>	<p><i>New Signs and Symbols:</i> cm centimeter/centimetre</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 161 - 170	Skills and Concepts to Develop (50% Probability*) 171 - 180	Skills and Concepts to Introduce (27% Probability*) 181 - 190
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Displays data appropriately - bar graph - scale is 1 to 1 • Compares data from simple graphs (e.g., largest, smallest, most often, least often) • Reads a chart or table - numbers • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads a simple bar graph - numbers (e.g., how many) • Compares data from simple graphs (e.g., largest, smallest, most often, least often) • Reads a chart or table - numbers • Interprets simple graphs or tables • Interprets data using tally charts • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) • Solves simple problems based on data from pictographs • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Solves simple problems based on data from bar graphs 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Interprets simple graphs or tables • Interprets a chart or table - calculation required • Reads and interprets data from a pictograph • Solves simple problems based on data from pictographs • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Reads a simple bar graph - numbers (e.g., how many) • Reads and interprets data from a bar graph • Interprets a simple bar graph - calculation required • Solves simple problems based on data from bar graphs
<p>Using Sampling and Probability to Make Decisions</p>	<p>Using Sampling and Probability to Make Decisions</p>	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Investigates probability of "more likely" or "less likely" with objects hidden in containers • Investigates probability of "more likely" or "less likely" using a spinner
<p><i>New Vocabulary:</i> dollar, longest, shortest</p>	<p><i>New Vocabulary:</i> fewer, taller</p>	<p><i>New Vocabulary:</i> lowest</p>
<p><i>New Signs and Symbols:</i> = is equal to</p>	<p><i>New Signs and Symbols:</i> cm centimeter/centimetre</p>	<p><i>New Signs and Symbols:</i> \$ dollar sign</p>

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Skills and concepts to Enhance (73% Probability*) 171 - 180	Skills and Concepts to Develop (50% Probability*) 181 - 190	Skills and Concepts to Introduce (27% Probability*) 191 - 200
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads a simple bar graph - numbers (e.g., how many) • Compares data from simple graphs (e.g., largest, smallest, most often, least often) • Reads a chart or table - numbers • Interprets simple graphs or tables • Interprets data using tally charts • Reads a simple pictograph - comparisons (e.g., largest smallest, most often, least often) • Solves simple problems based on data from pictographs • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Solves simple problems based on data from bar graphs 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Interprets simple graphs or tables • Interprets a chart or table - calculation required • Reads and interprets data from a pictograph • Solves simple problems based on data from pictographs • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Reads a simple bar graph - numbers (e.g., how many) • Reads and interprets data from a bar graph • Interprets a simple bar graph - calculation required • Solves simple problems based on data from bar graphs 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Interprets a simple bar graph - calculation required • Draws conclusions from data - tally charts or frequency tables • Interprets a chart or table - calculation required • Reads and interprets data from a pictograph • Interprets a pictograph - calculation required • Reads and interprets data from a bar graph • Reads and interprets dual bar graphs
<p>Using Sampling and Probability to Make Decisions</p>	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Investigates probability of "more likely" or "less likely" with objects hidden in containers • Investigates probability of "more likely" or "less likely" using a spinner 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Investigates probability of "more likely" or "less likely" using a spinner
<p><i>New Vocabulary:</i> fewer, taller</p>	<p><i>New Vocabulary:</i> lowest</p>	<p><i>New Vocabulary:</i> None</p>
<p><i>New Signs and Symbols:</i> cm centimeter/centimetre</p>	<p><i>New Signs and Symbols:</i> \$ dollar sign</p>	<p><i>New Signs and Symbols:</i> None</p>

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 181 - 190	Skills and Concepts to Develop (50% Probability*) 191 - 200	Skills and Concepts to Introduce (27% Probability*) 201 - 210
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Interprets simple graphs or tables • Interprets a chart or table - calculation required • Reads and interprets data from a pictograph • Solves simple problems based on data from pictographs • Reads a simple bar graph - comparisons (e.g., largest, smallest, most often, least often) • Reads a simple bar graph - numbers (e.g., how many) • Reads and interprets data from a bar graph • Interprets a simple bar graph - calculation required • Solves simple problems based on data from bar graphs 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Interprets a simple bar graph - calculation required • Draws conclusions from data - tally charts or frequency tables • Interprets a chart or table - calculation required • Reads and interprets data from a pictograph • Interprets a pictograph - calculation required • Reads and interprets data from a bar graph • Reads and interprets dual bar graphs 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Draws conclusions from data - bar graphs • Predicts from simple charts and tables • Solves problems using pictographs • Organizes data to create simple bar graphs • Solves problems using bar graphs • Solves problems using dual bar graphs • Determines the middle value (median) from a simple set of data
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Investigates probability of "more likely" or "less likely" with objects hidden in containers • Investigates probability of "more likely" or "less likely" using a spinner 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Investigates probability of "more likely" or "less likely" using a spinner 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines all possible outcomes • Determines the probability for a simple experiment using objects - must determine size of sample space • Recognizes events that are certain, likely, unlikely, possible, or impossible • Uses the concept of chance to determine the likelihood of an event • Determines the probability for a simple experiment using one or more coins
<p><i>New Vocabulary:</i> lowest</p>	<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> bar graph, chance, less likely, median, probability, random</p>
<p><i>New Signs and Symbols:</i> \$ dollar sign</p>	<p><i>New Signs and Symbols:</i> None</p>	<p><i>New Signs and Symbols:</i> ft feet</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 191 - 200	Skills and Concepts to Develop (50% Probability*) 201 - 210	Skills and Concepts to Introduce (27% Probability*) 211 - 220
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Interprets a simple bar graph - calculation required • Draws conclusions from data - tally charts or frequency tables • Interprets a chart or table - calculation required • Reads and interprets data from a pictograph • Interprets a pictograph - calculation required • Reads and interprets data from a bar graph • Reads and interprets dual bar graphs 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Draws conclusions from data - bar graphs • Predicts from simple charts and tables • Solves problems using pictographs • Organizes data to create simple bar graphs • Solves problems using bar graphs • Solves problems using dual bar graphs • Determines the middle value (median) from a simple set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads and interprets data in line plots • Solves simple problems involving mean • Predicts from plotted data • Determines the middle value (median) from a simple set of data • Solves problems using pictographs • Solves problems using bar graphs • Reads and interprets data in scatter plots • Determines the average (mean) of a simple set of data
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Investigates probability of "more likely" or "less likely" using a spinner 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines all possible outcomes • Determines the probability for a simple experiment using objects - must determine size of sample space • Recognizes events that are certain, likely, unlikely, possible, or impossible • Uses the concept of chance to determine the likelihood of an event • Determines the probability for a simple experiment using one or more coins 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Predicts the sample space, based on the outcome of an experiment - tally sheet • Determines all possible outcomes • Determines the probability for a simple experiment using one die • Determines probability from a real-world situation - number of possible outcomes given • Determines the probabilities for a simple experiment using a frequency table - must determine size of sample space • Determines probability when drawing objects from containers - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the complement of a simple event • Determines the possible outcomes for a simple probability experiment using spinners • Solves problems involving permutations • Determines the number of possible combinations of given items
<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> bar graph, chance, less likely, median, probability, random</p>	<p><i>New Vocabulary:</i> combinations, fastest, fitted line, line of best fit, line plot, mean, number cube, outcome, scatter plot</p>
<p><i>New Signs and Symbols:</i> None</p>	<p><i>New Signs and Symbols:</i> ft feet</p>	<p><i>New Signs and Symbols:</i> { } set notation, lb pound, P() probability, % percent</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 201 - 210	Skills and Concepts to Develop (50% Probability*) 211 - 220	Skills and Concepts to Introduce (27% Probability*) 221 - 230
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Draws conclusions from data - bar graphs • Predicts from simple charts and tables • Solves problems using pictographs • Organizes data to create simple bar graphs • Solves problems using bar graphs • Solves problems using dual bar graphs • Determines the middle value (median) from a simple set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads and interprets data in line plots • Solves simple problems involving mean • Predicts from plotted data • Determines the middle value (median) from a simple set of data • Solves problems using pictographs • Solves problems using bar graphs • Reads and interprets data in scatter plots • Determines the average (mean) of a simple set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines appropriate intervals and/or scale for a bar graph • Determines the average (mean) of a simple set of data • Determines the mean of a complex set of data (e.g., fractions, integers, many data points) • Solves simple problems involving mean • Solves problems with missing data when the mean is known • Determines the middle value (median) from a simple set of data • Determines the mode of a set of data • Predicts from line graphs • Determines the spread (range) from a simple set of data • Predicts from plotted data
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines all possible outcomes • Determines the probability for a simple experiment using objects - must determine size of sample space • Recognizes events that are certain, likely, unlikely, possible, or impossible • Uses the concept of chance to determine the likelihood of an event • Determines the probability for a simple experiment using one or more coins 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Predicts the sample space, based on the outcome of an experiment - tally sheet • Determines all possible outcomes • Determines the probability for a simple experiment using one die • Determines probability from a real-world situation - number of possible outcomes given • Determines the probabilities for a simple experiment using a frequency table - must determine size of sample space • Determines probability when drawing objects from containers - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the complement of a simple event • Determines the possible outcomes for a simple probability experiment using spinners • Solves problems involving permutations • Determines the number of possible combinations of given items 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Describes the population based on a given sample • Computes probability as a fraction, given equivalent forms • Determines the most accurate sample for a situation • Determines likelihood using tree diagrams • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the complement of a simple event • Determines the possible outcomes for a simple probability experiment using spinners • Determines the possible outcomes for a simple probability experiment using dart boards • Solves problems involving combinations • Determines the number of possible combinations of given items • Determines the outcome of simple multiple events • Predicts the sample space, based on the outcome of an experiment - tally sheet • Uses the results of probability experiments or events to predict future events • Uses previous results to predict future events
<p><i>New Vocabulary:</i> bar graph, chance, less likely, median, probability, random</p>	<p><i>New Vocabulary:</i> combinations, fastest, fitted line, line of best fit, line plot, mean, number cube, outcome, scatter plot</p>	<p><i>New Vocabulary:</i> survey, tails</p>
<p><i>New Signs and Symbols:</i> ft feet</p>	<p><i>New Signs and Symbols:</i> { } set notation, lb pound, P() probability, % percent</p>	<p><i>New Signs and Symbols:</i> oz ounce</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 211 - 220	Skills and Concepts to Develop (50% Probability*) 221 - 230	Skills and Concepts to Introduce (27% Probability*) 231 - 240
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Reads and interprets data in line plots • Solves simple problems involving mean • Predicts from plotted data • Determines the middle value (median) from a simple set of data • Solves problems using pictographs • Solves problems using bar graphs • Reads and interprets data in scatter plots • Determines the average (mean) of a simple set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines appropriate intervals and/or scale for a bar graph • Determines the average (mean) of a simple set of data • Determines the mean of a complex set of data (e.g., fractions, integers, many data points) • Solves simple problems involving mean • Solves problems with missing data when the mean is known • Determines the middle value (median) from a simple set of data • Determines the mode of a set of data • Predicts from line graphs • Determines the spread (range) from a simple set of data • Predicts from plotted data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines the median from a complex set of data (e.g., not in order, many data points) • Estimates line of best fit to make predictions • Determines appropriate intervals and/or scale for a bar graph • Interprets data given in horizontal and vertical bar graphs to solve problems • Reads and interprets data in box-and-whisker plots • Determines the mean of a complex set of data (e.g., fractions, integers, many data points) • Solves problems with missing data when the mean is known • Determines the range of a complex set of data
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Predicts the sample space, based on the outcome of an experiment - tally sheet • Determines all possible outcomes • Determines the probability for a simple experiment using one die • Determines probability from a real-world situation - number of possible outcomes given • Determines the probabilities for a simple experiment using a frequency table - must determine size of sample space • Determines probability when drawing objects from containers - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the complement of a simple event • Determines the possible outcomes for a simple probability experiment using spinners • Solves problems involving permutations • Determines the number of possible combinations of given items 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Describes the population based on a given sample • Computes probability as a fraction, given equivalent forms • Determines the most accurate sample for a situation • Determines likelihood using tree diagrams • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the complement of a simple event • Determines the possible outcomes for a simple probability experiment using spinners • Determines the possible outcomes for a simple probability experiment using dart boards • Solves problems involving combinations • Determines the number of possible combinations of given items • Determines the outcome of simple multiple events • Predicts the sample space, based on the outcome of an experiment - tally sheet • Uses the results of probability experiments or events to predict future events • Uses previous results to predict future events 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines the probability of independent simple compound events • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the possible outcomes for a simple probability experiment using dart boards • Determines the outcome of simple multiple events • Uses the results of probability experiments or events to predict future events • Recognizes the relationship between events and probability - selects an experiment which matches a given probability • Predicts from an analysis of data and statistical measures • Predicts from charts and tables • Describes the population based on a given sample
<p><i>New Vocabulary:</i> combinations, fastest, fitted line, line of best fit, line plot, mean, number cube, outcome, scatter plot</p> <p><i>New Signs and Symbols:</i> { } set notation, lb pound, P() probability, % percent</p>	<p><i>New Vocabulary:</i> survey, tails</p> <p><i>New Signs and Symbols:</i> oz ounce</p>	<p><i>New Vocabulary:</i> average salary, box-and-whisker plot, data point, interquartile range, lower quartile, middle, outlier, quartile, representative sample, sample, upper quartile</p> <p><i>New Signs and Symbols:</i> () ordered pair, °F degrees Fahrenheit, \$ dollar sign</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 221 - 230	Skills and Concepts to Develop (50% Probability*) 231 - 240	Skills and Concepts to Introduce (27% Probability*) 241 - 250
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines appropriate intervals and/or scale for a bar graph • Determines the average (mean) of a simple set of data • Determines the mean of a complex set of data (e.g., fractions, integers, many data points) • Solves simple problems involving mean • Solves problems with missing data when the mean is known • Determines the middle value (median) from a simple set of data • Determines the mode of a set of data • Predicts from line graphs • Determines the spread (range) from a simple set of data • Predicts from plotted data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines the median from a complex set of data (e.g., not in order, many data points) • Estimates line of best fit to make predictions • Determines appropriate intervals and/or scale for a bar graph • Interprets data given in horizontal and vertical bar graphs to solve problems • Reads and interprets data in box-and-whisker plots • Determines the mean of a complex set of data (e.g., fractions, integers, many data points) • Solves problems with missing data when the mean is known • Determines the range of a complex set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines slope from an equation (analysis) • Reads and interprets data in tables • Reads and interprets data in box-and-whisker plots • Reads and interprets interquartile range in box-and-whisker plots • Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) • Determines the range of a complex set of data • Determines the correlation for a set of data
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Describes the population based on a given sample • Computes probability as a fraction, given equivalent forms • Determines the most accurate sample for a situation • Determines likelihood using tree diagrams • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the complement of a simple event • Determines the possible outcomes for a simple probability experiment using spinners • Determines the possible outcomes for a simple probability experiment using dart boards • Solves problems involving combinations • Determines the number of possible combinations of given items • Determines the outcome of simple multiple events • Predicts the sample space, based on the outcome of an experiment - tally sheet • Uses the results of probability experiments or events to predict future events • Uses previous results to predict future events 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines the probability of independent simple compound events • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event • Determines the possible outcomes for a simple probability experiment using dart boards • Determines the outcome of simple multiple events • Uses the results of probability experiments or events to predict future events • Recognizes the relationship between events and probability - selects an experiment which matches a given probability • Predicts from an analysis of data and statistical measures • Predicts from charts and tables • Describes the population based on a given sample 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Uses theoretical probability to predict future events • Describes the population based on a given sample • Determines probability using counting procedures • Determines probability using tables • Determines the complement of a complex event • Determines probability using an area model • Uses multiplication principle of counting to determine possibilities • Predicts from an analysis of data and statistical measures
<p><i>New Vocabulary:</i> survey, tails</p>	<p><i>New Vocabulary:</i> average salary, box-and-whisker plot, data point, interquartile range, lower quartile, middle, outlier, quartile, representative sample, sample, upper quartile</p>	<p><i>New Vocabulary:</i> correlation, hyperbolic</p>
<p><i>New Signs and Symbols:</i> oz ounce</p>	<p><i>New Signs and Symbols:</i> () ordered pair, °F degrees Fahrenheit, \$ dollar sign</p>	<p><i>New Signs and Symbols:</i> x multiplication, • outlier</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 231 - 240	Skills and Concepts to Develop (50% Probability*) 241 - 250	Skills and Concepts to Introduce (27% Probability*) 251 - 260
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> Determines the median from a complex set of data (e.g., not in order, many data points) Estimates line of best fit to make predictions Determines appropriate intervals and/or scale for a bar graph Interprets data given in horizontal and vertical bar graphs to solve problems Reads and interprets data in box-and-whisker plots Determines the mean of a complex set of data (e.g., fractions, integers, many data points) Solves problems with missing data when the mean is known Determines the range of a complex set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> Determines slope from an equation (analysis) Reads and interprets data in tables Reads and interprets data in box-and-whisker plots Reads and interprets interquartile range in box-and-whisker plots Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) Determines the range of a complex set of data Determines the correlation for a set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> Determines slope from an equation (analysis) Reads and interprets interquartile range in box-and-whisker plots Solves complex problems involving mean Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) Computes and compares mean, median, mode, and range in simple examples to demonstrate that they may differ for a given set of data
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> Determines the probability of independent simple compound events Determines probability - must determine size of sample space Modifies sample space to change the probability of an event Determines the possible outcomes for a simple probability experiment using dart boards Determines the outcome of simple multiple events Uses the results of probability experiments or events to predict future events Recognizes the relationship between events and probability - selects an experiment which matches a given probability Predicts from an analysis of data and statistical measures Predicts from charts and tables Describes the population based on a given sample 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> Uses theoretical probability to predict future events Describes the population based on a given sample Determines probability using counting procedures Determines probability using tables Determines the complement of a complex event Determines probability using an area model Uses multiplication principle of counting to determine possibilities Predicts from an analysis of data and statistical measures 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> Uses random sampling techniques Determines the probabilities of complex compound events (independent) Uses factorial notation and computations to represent and solve problems
<p><i>New Vocabulary:</i> average salary, box-and-whisker plot, data point, interquartile range, lower quartile, middle, outlier, quartile, representative sample, sample, upper quartile</p> <p><i>New Signs and Symbols:</i> () ordered pair, °F degrees Fahrenheit, \$ dollar sign</p>	<p><i>New Vocabulary:</i> correlation, hyperbolic</p> <p><i>New Signs and Symbols:</i> × multiplication, • outlier</p>	<p><i>New Vocabulary:</i> None</p> <p><i>New Signs and Symbols:</i> + addition</p>

Explanatory Notes

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Skills and concepts to Enhance (73% Probability*) 241 - 250	Skills and Concepts to Develop (50% Probability*) 251 - 260	Skills and Concepts to Introduce (27% Probability*) > 260
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines slope from an equation (analysis) • Reads and interprets data in tables • Reads and interprets data in box-and-whisker plots • Reads and interprets interquartile range in box-and-whisker plots • Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) • Determines the range of a complex set of data • Determines the correlation for a set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines slope from an equation (analysis) • Reads and interprets interquartile range in box-and-whisker plots • Solves complex problems involving mean • Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) • Computes and compares mean, median, mode, and range in simple examples to demonstrate that they may differ for a given set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) • Determines slope from an equation (analysis) • Reads and interprets interquartile range in box-and-whisker plots
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Uses theoretical probability to predict future events • Describes the population based on a given sample • Determines probability using counting procedures • Determines probability using tables • Determines the complement of a complex event • Determines probability using an area model • Uses multiplication principle of counting to determine possibilities • Predicts from an analysis of data and statistical measures 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Uses random sampling techniques • Determines the probabilities of complex compound events (independent) • Uses factorial notation and computations to represent and solve problems 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines the probabilities of compound events (dependent)
<p><i>New Vocabulary:</i> correlation, hyperbolic</p>	<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> None</p>
<p><i>New Signs and Symbols:</i> × multiplication, • outlier</p>	<p><i>New Signs and Symbols:</i> + addition</p>	<p><i>New Signs and Symbols:</i> None</p>

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.

Skills and concepts to Enhance (73% Probability*) 251 - 260	Skills and Concepts to Develop (50% Probability*) > 260
<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Determines slope from an equation (analysis) • Reads and interprets interquartile range in box-and-whisker plots • Solves complex problems involving mean • Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) • Computes and compares mean, median, mode, and range in simple examples to demonstrate that they may differ for a given set of data 	<p>Interpreting Categorical and Quantitative Data</p> <ul style="list-style-type: none"> • Identifies outliers on a data display (e.g., uses interquartile range to identify outliers on a box-and-whisker plot) • Determines slope from an equation (analysis) • Reads and interprets interquartile range in box-and-whisker plots
<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Uses random sampling techniques • Determines the probabilities of complex compound events (independent) • Uses factorial notation and computations to represent and solve problems 	<p>Using Sampling and Probability to Make Decisions</p> <ul style="list-style-type: none"> • Determines the probabilities of compound events (dependent)
<p><i>New Vocabulary:</i> None</p>	<p><i>New Vocabulary:</i> None</p>
<p><i>New Signs and Symbols:</i> + addition</p>	<p><i>New Signs and Symbols:</i> None</p>

Explanatory Notes

* At the range mid-point, this is the probability students would correctly answer items measuring these concepts and skills. Both data from test items and review by NWEA curriculum specialists are used to place Learning Continuum statements into appropriate RIT ranges. Blank cells indicate data are limited or unavailable for this range or document version.