5
Mathematics 6+

Contents

Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: Below 161

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Number Sense - Construct Meaning	**Number Sense - Construct Meaning**
• Counts numbers 0-20*	• Counts 1 to 10 objects • Counts numbers 0-20* • Identifies missing numbers in a series through 100 • Counts ordinal numbers (1st to 10th)
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**
	• Writes whole numbers in standard and expanded form through the tens
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**
	• Adds money vertically with no regrouping*
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**
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Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**
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Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**
• Uses models to construct whole number addition facts with addends through 10* • Uses models to calculate whole number sums through 99*	• Uses a number line to construct addition facts with sums through 20 (whole numbers)* • Uses models to calculate whole number sums through 99* • Uses models to calculate whole number sums through 999* • Uses models to construct subtraction facts with differences through 10 (whole numbers)* • Uses models to calculate differences through 100 (whole numbers)*
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**
• Adds two 1-digit numbers with sums to 10 in horizontal format	• Adds two 1-digit numbers with sums to 10 in horizontal format • Adds two 1-digit numbers with sums to 10 in vertical format • Adds two 1-digit numbers with sums between 10 and

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	19 in horizontal format • Adds two 1-digit numbers with sums between 10 and 19 in vertical format* • Adds multiple 1-digit numbers • 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 2-digit numbers with no regrouping • Adds 2-digit to 3-digit number, with no regrouping, with sums under 1000* • Subtracts two 1-digit numbers horizontally • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts two 1-digit numbers vertically • Uses strategies for subtraction facts (e.g., counting back, one less, two less)* • Subtracts a 2-digit number from a 2-digit number, with no regrouping
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**
	• Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12
Numerical Operations - Advanced	**Numerical Operations - Advanced**
Estimation	**Estimation**
New Vocabulary: none	*New Vocabulary:* add, double, numeral, sum
New Signs and Symbols: + addition, = is equal to, □ variable	*New Signs and Symbols:* $ dollar sign, × multiplication, – subtraction

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 161 - 170

Skills and Concepts to Enhance Below 161	Skills and Concepts to Develop 161 - 170	Skills and Concepts to Introduce 171 - 180
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Counts numbers 0-20*	• Counts 1 to 10 objects • Counts numbers 0-20* • Identifies missing numbers in a series through 100 • Counts ordinal numbers (1st to 10th)	• Identifies the numeral and written name for ordinal numbers 1st to 20th (e.g., 1st is first, and vice versa)* • Counts numbers 0-100 • Counts numbers 0-1000* • Identifies missing numbers in a series through 100 • Counts by 2's to 100 • Counts and writes by 5's* • Counts backwards from a given number (given number greater than 10)* • Identifies a whole number that comes between 2 given numbers (20 to 100)* • Counts ordinal numbers (first to tenth) • Identifies the ordinal number that comes before, between, or after a given ordinal number (first to tenth)* • Represents 1/2 with a diagram or model
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
	• Writes whole numbers in standard and expanded form through the tens	• Counts objects that are grouped into tens and ones • Identifies the place value and value of each digit in whole numbers through the tens place*
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
	• Adds money vertically with no regrouping*	• Adds money vertically with no regrouping* • 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) • Uses cent sign and dollar sign when appropriate* • Connects money with place value
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
	• Orders whole numbers less than 10*	• Compares whole numbers through100* • Compares whole numbers through 999 • Orders sets of objects 0-10* • Orders sets of objects 0-20*

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Number Sense - Represent Equivalence of Numbers	Number Sense - Represent Equivalence of Numbers	Number Sense - Represent Equivalence of Numbers
		• Writes equivalent forms of whole number expressions (e.g., 15 + 5 = 10 + 10) • Identifies equivalent fractions using visual representations*
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Uses models to construct whole number addition facts with addends through 10* • Uses models to calculate whole number sums through 99*	• Uses a number line to construct addition facts with sums through 20 (whole numbers)* • Uses models to calculate whole number sums through 99* • Uses models to calculate whole number sums through 999* • Uses models to construct subtraction facts with differences through 10 (whole numbers)* • Uses models to calculate differences through 100 (whole numbers)*	• Uses a number line to construct addition facts with sums through 20 (whole numbers)* • Uses models to calculate whole number sums through 999* • Uses models to calculate differences through 100 (whole numbers)* • Uses models to calculate differences through 1000 (whole numbers)* • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding that vertical and horizontal representations are equivalent
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Adds two 1-digit numbers with sums to 10 in horizontal format	• Adds two 1-digit numbers with sums to 10 in horizontal format • Adds two 1-digit numbers with sums to 10 in vertical format • 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 • 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 2-digit numbers with no regrouping • Adds 2-digit to 3-digit number, with no regrouping, with sums under 1000* • Subtracts two 1-digit numbers horizontally • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only)	• Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds 2-digit to 3-digit number, with no regrouping, with sums under 1000* • Adds two or three 2-digit number with regrouping • Adds 1-, 2-, and/or 3-digit numbers with sums under 100* • Adds 3-digit numbers with no regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Adds multiple-digit numbers, with no regrouping, with sums over 1000* • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Uses strategies for subtraction facts (e.g., counting back, one less, two less)* • Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically • Subtracts a 1-digit number from a multiple-digit

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	• Subtracts two 1-digit numbers vertically • Uses strategies for subtraction facts (e.g., counting back, one less, two less)* • Subtracts a 2-digit number from a 2-digit number, with no regrouping	number* • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Subtracts 2- and/or 3-digit numbers with no regrouping • Adds 1-digit numbers with sums to 18 (with parentheses)
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
	• Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12	• Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
Estimation	**Estimation**	**Estimation**
New Vocabulary: none	*New Vocabulary:* add, double, numeral, sum	*New Vocabulary:* before, between, count, counting order, dime, dollar sign, eighth, eleventh, fact family, fifth, greater, greater than, largest, ninth, penny, seventh, tenth
New Signs and Symbols: + addition, = is equal to, □ variable	*New Signs and Symbols:* $ dollar sign, × multiplication, – subtraction	*New Signs and Symbols:* ( ) order of operations, ¢ cent sign

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 171 - 180

Skills and Concepts to Enhance 161 - 170	Skills and Concepts to Develop 171 - 180	Skills and Concepts to Introduce 181 - 190
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Counts 1 to 10 objects • Counts numbers 0-20* • Identifies missing numbers in a series through 100 • Counts ordinal numbers (1st to 10th)	• Identifies the numeral and written name for ordinal numbers 1st to 20th (e.g., 1st is first, and vice versa)* • Counts numbers 0-100 • Counts numbers 0-1000* • Identifies missing numbers in a series through 100 • Counts by 2's to 100 • Counts and writes by 5's* • Counts backwards from a given number (given number greater than 10)* • Identifies a whole number that comes between 2 given numbers (20 to 100)* • Counts ordinal numbers (first to tenth) • Identifies the ordinal number that comes before, between, or after a given ordinal number (first to tenth)* • Represents 1/2 with a diagram or model	• Identifies the number that is "1 more than" a given number* • Identifies the number that is "1 less than" a given number • Counts numbers 0-1000* • Counts and writes by 3's* • Counts and writes by 4's* • Counts and writes by 6's, 7's, 8's, or 9's* • Counts ordinal numbers (first to tenth) • Identifies the ordinal number that comes before, between, or after a given ordinal number (first to tenth)* • Represents 1/4 with a diagram or model* • Represents 3/4 with a diagram or model* • Identifies equal parts by using models • Identifies 1/2 from a region or set • Identifies 1/4 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
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• Writes whole numbers in standard and expanded form through the tens	• Counts objects that are grouped into tens and ones • Identifies the place value and value of each digit in whole numbers through the tens place*	• 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 • Applies base ten place value concepts to solve problems

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		using decimals*
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
• Adds money vertically with no regrouping*	• Adds money vertically with no regrouping* • 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) • Uses cent sign and dollar sign when appropriate* • Connects money with place value	• Identifies the value of a collection of coins to $1.00 (without picture of coins) • Adds money with regrouping • Identifies the value of a collection of coins and bills to $10.00 by "counting on" (with picture of money) • Identifies the value of a collection of coins and bills to $100.00 by "counting on"* • 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
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• Orders whole numbers less than 10*	• Compares whole numbers through100* • Compares whole numbers through 999 • Orders sets of objects 0-10* • Orders sets of objects 0-20*	• Compares whole numbers through 999 • Compares whole numbers through 9999 • Orders sets of objects 0-20* • Orders whole numbers less than 100 • Orders whole numbers less than 1000* • Compares and orders decimals to the hundredths place (same number of digits after decimal)
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
	• Writes equivalent forms of whole number expressions (e.g., 15 + 5 = 10 + 10) • Identifies equivalent fractions using visual representations*	• Counts and converts to dozens with models* • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7)* • Writes equivalent forms of whole numbers using multiplication (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3)* • Converts to dozens without models
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
		• Determines whether a set of objects has an odd or even number of elements • Distinguishes between odd and even numbers
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Uses a number line to construct addition facts with sums through 20 (whole numbers)* • Uses models to calculate whole number sums through 99* • Uses models to calculate whole number sums through 999* • Uses models to construct subtraction facts with	• Uses a number line to construct addition facts with sums through 20 (whole numbers)* • Uses models to calculate whole number sums through 999* • Uses models to calculate differences through 100 (whole numbers)* • Uses models to calculate differences through 1000	• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)* • Uses models to calculate differences through 1000 (whole numbers)* • Uses sharing for division • Models whole number multiplication and division

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differences through 10 (whole numbers)* • Uses models to calculate differences through 100 (whole numbers)*	(whole numbers)* • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding that vertical and horizontal representations are equivalent	algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Models multiplication and division algorithms using arrays (whole numbers) • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the inverse relationship between multiplication and division
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Adds two 1-digit numbers with sums to 10 in horizontal format • Adds two 1-digit numbers with sums to 10 in vertical format • 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 • 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 2-digit numbers with no regrouping • Adds 2-digit to 3-digit number, with no regrouping, with sums under 1000* • Subtracts two 1-digit numbers horizontally • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Subtracts two 1-digit numbers vertically • Uses strategies for subtraction facts (e.g., counting back, one less, two less)* • Subtracts a 2-digit number from a 2-digit number, with no regrouping	• Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds 2-digit to 3-digit number, with no regrouping, with sums under 1000* • Adds two or three 2-digit number with regrouping • Adds 1-, 2-, and/or 3-digit numbers with sums under 100* • Adds 3-digit numbers with no regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Adds multiple-digit numbers, with no regrouping, with sums over 1000* • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Uses strategies for subtraction facts (e.g., counting back, one less, two less)* • Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically • Subtracts a 1-digit number from a multiple-digit number* • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Subtracts 2- and/or 3-digit numbers with no regrouping • Adds 1-digit numbers with sums to 18 (with parentheses)	• Adds 1-digit to multiple-digit number with regrouping* • Adds two or three 2-digit number with regrouping • Adds 2-digit to 3-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 • Instantly recalls basic subtraction facts with minuend less than 10* • Subtracts a 1-digit number from a multiple-digit number* • 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 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* • Adds decimals to the hundredths place (same number of digits) • Subtracts decimals to the hundredths place (same number of digits) without regrouping
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• Instantly recalls basic multiplication facts where one	• Instantly recalls basic multiplication facts where one	• Multiplies basic facts to 10 x 10 vertically

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factor is 0-5 and the other factor is 0-12	factor is 0-5 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 • Instantly recalls division facts with dividend and divisors less than 10
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
Estimation	**Estimation**	**Estimation**
		• Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)
New Vocabulary: add, double, numeral, sum	*New Vocabulary:* before, between, count, counting order, dime, dollar sign, eighth, eleventh, fact family, fifth, greater, greater than, largest, ninth, penny, seventh, tenth	*New Vocabulary:* closest, coins, digit, dozen, even number, factor, fourths, fraction, hundred thousand, hundreds, million, nearest, nickel, number statement, odd number, one, round, row, smallest, symmetrical, ten, ten thousand, thirds, thousandth, unifix cubes, unit, value
New Signs and Symbols: $ dollar sign, × multiplication, – subtraction	*New Signs and Symbols:* ( ) order of operations, ¢ cent sign	*New Signs and Symbols:* { } set notation, ÷ division, long division symbol

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 181 - 190

Skills and Concepts to Enhance 171 - 180	Skills and Concepts to Develop 181 - 190	Skills and Concepts to Introduce 191 - 200
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Identifies the numeral and written name for ordinal numbers 1st to 20th (e.g., 1st is first, and vice versa)* • Counts numbers 0-100 • Counts numbers 0-1000* • Identifies missing numbers in a series through 100 • Counts by 2's to 100 • Counts and writes by 5's* • Counts backwards from a given number (given number greater than 10)* • Identifies a whole number that comes between 2 given numbers (20 to 100)* • Counts ordinal numbers (first to tenth) • Identifies the ordinal number that comes before, between, or after a given ordinal number (first to tenth)* • Represents 1/2 with a diagram or model	• Identifies the number that is "1 more than" a given number* • Identifies the number that is "1 less than" a given number • Counts numbers 0-1000* • Counts and writes by 3's* • Counts and writes by 4's* • Counts and writes by 6's, 7's, 8's, or 9's* • Counts ordinal numbers (first to tenth) • Identifies the ordinal number that comes before, between, or after a given ordinal number (first to tenth)* • Represents 1/4 with a diagram or model* • Represents 3/4 with a diagram or model* • Identifies equal parts by using models • Identifies 1/2 from a region or set • Identifies 1/4 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	• Identifies the numeral and written name for ordinal numbers 21st to100th (e.g., 21st is twenty-first, and vice versa)* • Represents 1/3 with a diagram or model • Identifies one-half from a region or set* • 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 a decimal on a number line to the tenths place*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• Counts objects that are grouped into tens and ones • Identifies the place value and value of each digit in whole numbers through the tens place*	• 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 • Applies base ten place value concepts to solve problems	• 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

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	using decimals*	
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
• Adds money vertically with no regrouping* • 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) • Uses cent sign and dollar sign when appropriate* • Connects money with place value	• Identifies the value of a collection of coins to $1.00 (without picture of coins) • Adds money with regrouping • Identifies the value of a collection of coins and bills to $10.00 by "counting on" (with picture of money) • Identifies the value of a collection of coins and bills to $100.00 by "counting on"* • 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	• Identifies the value of a collection of coins to $1.00 (without picture of coins) • Adds money with regrouping • Identifies the value of a collection of coins and bills to $10.00 by "counting on" (without picture of money) • Identifies the value of a collection of coins and bills to $100.00 by "counting on"* • Finds equivalent combinations of coins with the same value* • Finds equivalent combinations of dollars and cents with the same value* • Makes change to $1.00 by "counting on" or subtracting
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• Compares whole numbers through100* • Compares whole numbers through 999 • Orders sets of objects 0-10* • Orders sets of objects 0-20*	• Compares whole numbers through 999 • Compares whole numbers through 9999 • Orders sets of objects 0-20* • Orders whole numbers less than 100 • Orders whole numbers less than 1000* • Compares and orders decimals to the hundredths place (same number of digits after decimal)	• 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 999,999 • 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 = • Orders whole numbers less than 1000* • Orders whole numbers less than 10,000 • Compares and orders money in decimal form • Compares and orders decimals to the thousandths place (same number of digits after decimal)*
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Writes equivalent forms of whole number expressions (e.g., 15 + 5 = 10 + 10) • Identifies equivalent fractions using visual representations*	• Counts and converts to dozens with models* • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7)* • Writes equivalent forms of whole numbers using multiplication (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3)* • Converts to dozens without models	• Counts and converts to dozens with models* • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7)* • Writes equivalent forms of whole numbers using multiplication (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3)* • Converts to dozens without models • Matches numeric and visual representation of equivalent fractions
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
	• Determines whether a set of objects has an odd or even number of elements • Distinguishes between odd and even numbers	• Distinguishes between odd and even numbers • Identifies numbers as composite
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
		• Writes the missing number in a proportion using basic facts

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Numerical Operations - Develop Meanings	Numerical Operations - Develop Meanings	Numerical Operations - Develop Meanings
• Uses a number line to construct addition facts with sums through 20 (whole numbers)* • Uses models to calculate whole number sums through 999* • Uses models to calculate differences through 100 (whole numbers)* • Uses models to calculate differences through 1000 (whole numbers)* • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding that vertical and horizontal representations are equivalent	• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)* • Uses models to calculate differences through 1000 (whole numbers)* • 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) • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the inverse relationship between multiplication and division	• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)* • Adds and subtracts whole numbers using place value • Uses repeated subtraction for division* • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the multiplicative property of 1 (identity) • Uses models to add and subtract fractions and connect the actions to algorithms*
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Uses strategies for addition facts (e.g., compatible numbers, counting on, doubles, neighbors, making tens) • Adds 2-digit to 3-digit number, with no regrouping, with sums under 1000* • Adds two or three 2-digit number with regrouping • Adds 1-, 2-, and/or 3-digit numbers with sums under 100* • Adds 3-digit numbers with no regrouping • Adds 3-digit numbers, with regrouping, with sums under 1000 • Adds multiple-digit numbers, with no regrouping, with sums over 1000* • Subtracts a 1-digit number from a 2-digit number that is less than 20 (whole numbers only) • Uses strategies for subtraction facts (e.g., counting back, one less, two less)* • Subtracts a 1-digit number from a 2-digit number with no regrouping, vertically • Subtracts a 1-digit number from a multiple-digit number* • Subtracts a 2-digit number from a 2-digit number, with no regrouping • Subtracts 2- and/or 3-digit numbers with no regrouping	• Adds 1-digit to multiple-digit number with regrouping* • Adds two or three 2-digit number with regrouping • Adds 2-digit to 3-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 • Instantly recalls basic subtraction facts with minuend less than 10* • Subtracts a 1-digit number from a multiple-digit number* • 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 2- and/or 3-digit numbers with no regrouping • Subtracts 3- or 4-digit numbers with regrouping	• Adds 2-digit to 3-digit number with regrouping • Uses number sense strategies to determine the correct answer for an addition computation* • 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 • Performs mental subtraction with numbers 1000 and over • Subtracts multiple-digit numbers with no regrouping* • Subtracts fractions with like denominators without reducing • Adds decimals to the hundredths place (same number

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• Adds 1-digit numbers with sums to 18 (with parentheses)	• Performs mental subtraction with numbers under 1000 • Subtracts multiple-digit numbers with no regrouping* • Adds decimals to the hundredths place (same number of digits) • Subtracts decimals to the hundredths place (same number of digits) without regrouping	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 • Subtracts decimals to the hundredths place (same number of digits) without regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Subtracts decimals to the thousandths place, vertically, with and without regrouping
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• Instantly recalls basic multiplication facts where one factor is 0-5 and the other factor is 0-12 • Multiplies basic facts to 10 x 10 vertically	• Multiplies basic facts to 10 x 10 vertically • Multiplies a 2-digit number by a 1-digit number with regrouping • Instantly recalls division facts with dividend and divisors less than 10	• 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* • Multiplies a 3-digit number by a 2-digit number with no regrouping • Performs mental computation with multiplication • 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 • Uses strategies to determine 1 missing digit (multiplication/division only) • Evaluates numerical expressions using grouping symbols (whole numbers only) • Multiplies a decimal by whole number
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
Estimation	**Estimation**	**Estimation**
	• Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)	• Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)*

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		• Uses front end digits to estimate answers in addition and subtraction computations (whole numbers only)* • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Uses rounding to estimate answers to 1-step problems involving answers less than $1 (whole numbers only, e.g., 10 cents + 10 cents)* • Uses rounding to estimate answers to 1-step problems involving answers less than $20 (decimals only, e.g., $1.20 + $2.75)
New Vocabulary: before, between, count, counting order, dime, dollar sign, eighth, eleventh, fact family, fifth, greater, greater than, largest, ninth, penny, seventh, tenth	*New Vocabulary:* closest, coins, digit, dozen, even number, factor, fourths, fraction, hundred thousand, hundreds, million, nearest, nickel, number statement, odd number, one, round, row, smallest, symmetrical, ten, ten thousand, thirds, thousandth, unifix cubes, unit, value	*New Vocabulary:* billion, composite number, hundredths, prime number, symbol, thousands, zero
New Signs and Symbols: ( ) order of operations, ¢ cent sign	*New Signs and Symbols:* { } set notation, ÷ division, long division symbol	*New Signs and Symbols:* ≈ approximately equal to, > greater than, ≥ greater than or equal to, < less than, ≤ less than or equal to, R remainder

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 191 - 200

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Identifies the number that is "1 more than" a given number* • Identifies the number that is "1 less than" a given number • Counts numbers 0-1000* • Counts and writes by 3's* • Counts and writes by 4's* • Counts and writes by 6's, 7's, 8's, or 9's* • Counts ordinal numbers (first to tenth) • Identifies the ordinal number that comes before, between, or after a given ordinal number (first to tenth)* • Represents 1/4 with a diagram or model* • Represents 3/4 with a diagram or model* • Identifies equal parts by using models • Identifies 1/2 from a region or set • Identifies 1/4 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	• Identifies the numeral and written name for ordinal numbers 21st to100th (e.g., 21st is twenty-first, and vice versa)* • Represents 1/3 with a diagram or model • Identifies one-half from a region or set* • 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 a decimal on a number line to the tenths place*	• Identifies a whole number that comes before and/or after a given number (over 100)* • Identifies halves of a region using nonadjacent parts • Writes a number "squared" in factored form*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• 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 • Applies base ten place value concepts to solve problems	• 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	• 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 the place value and value of each digit to the tenths*

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using decimals*		
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
• Identifies the value of a collection of coins to $1.00 (without picture of coins) • Adds money with regrouping • Identifies the value of a collection of coins and bills to $10.00 by "counting on" (with picture of money) • Identifies the value of a collection of coins and bills to $100.00 by "counting on"* • 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	• Identifies the value of a collection of coins to $1.00 (without picture of coins) • Adds money with regrouping • Identifies the value of a collection of coins and bills to $10.00 by "counting on" (without picture of money) • Identifies the value of a collection of coins and bills to $100.00 by "counting on"* • Finds equivalent combinations of coins with the same value* • Finds equivalent combinations of dollars and cents with the same value* • Makes change to $1.00 by "counting on" or subtracting	• Finds equivalent combinations of dollars and cents with the same value*
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• Compares whole numbers through 999 • Compares whole numbers through 9999 • Orders sets of objects 0-20* • Orders whole numbers less than 100 • Orders whole numbers less than 1000* • Compares and orders decimals to the hundredths place (same number of digits after decimal)	• 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 999,999 • 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 = • Orders whole numbers less than 1000* • Orders whole numbers less than 10,000 • Compares and orders money in decimal form • Compares and orders decimals to the thousandths place (same number of digits after decimal)*	• Compares whole numbers through 999,999 • Compares whole numbers through the billions using the symbols <, >, or =* • Orders whole numbers less than 10,000 • Orders whole numbers a million or greater • Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10) • Compares integers on a number line* • Orders integers on a number line*
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Counts and converts to dozens with models* • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7)* • Writes equivalent forms of whole numbers using multiplication (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3)* • Converts to dozens without models	• Counts and converts to dozens with models* • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7)* • Writes equivalent forms of whole numbers using multiplication (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3)* • Converts to dozens without models • Matches numeric and visual representation of equivalent fractions	• Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)* • Writes mixed numbers as improper fractions and improper fractions as mixed numbers • Writes a terminating decimal as a fraction or mixed number
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
• Determines whether a set of objects has an odd or even number of elements • Distinguishes between odd and even numbers	• Distinguishes between odd and even numbers • Identifies numbers as composite	• Determines multiples of a whole number* • Determines common multiples of whole numbers*
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
	• Writes the missing number in a proportion using basic facts	• Writes the missing number in a proportion using basic facts

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Numerical Operations - Develop Meanings	Numerical Operations - Develop Meanings	Numerical Operations - Develop Meanings
• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)* • Uses models to calculate differences through 1000 (whole numbers)* • 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) • Recognizes addition and subtraction fact families through 18 • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the inverse relationship between multiplication and division	• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)* • Adds and subtracts whole numbers using place value • Uses repeated subtraction for division* • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the multiplicative property of 1 (identity) • Uses models to add and subtract fractions and connect the actions to algorithms*	• Adds and subtracts whole numbers using place value • Uses a number line to model multiplication (whole numbers)* • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)* • Demonstrates an understanding of the associative property of addition* • Demonstrates an understanding of the commutative property of addition • Demonstrates an understanding of the zero property of addition (identity) • Demonstrates an understanding of symmetric property applied to basic addition and subtraction facts (e.g., 10 = 2 + 8 is the same as 2 + 8 = 10 or 7 = 10 - 3 is the same as 10 - 3 = 7)* • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of symmetric property applied to multiplication (e.g., 8 x 4 = 32 is the same as 32 = 8 x 4)* • Recognizes multiplication and division fact families* • Uses models to add and subtract fractions and connect the actions to algorithms* • Uses the commutative property of addition with rational numbers*
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Adds 1-digit to multiple-digit number with regrouping* • Adds two or three 2-digit number with regrouping • Adds 2-digit to 3-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 • Instantly recalls basic subtraction facts with minuend less than 10* • Subtracts a 1-digit number from a multiple-digit number* • Subtracts 1-digit number from a 2-digit number with	• Adds 2-digit to 3-digit number with regrouping • Uses number sense strategies to determine the correct answer for an addition computation* • 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	• Instantly recalls basic addition facts with sums to 18 in a table* • Uses reasoning strategies to solve magic squares and related puzzles (addition, whole numbers only) • 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 • Performs mental subtraction with numbers 1000 and over • Subtracts numbers with 5 digits or more with regrouping • Uses strategies to determine 2 or more missing digits (addition/subtraction only)

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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 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* • Adds decimals to the hundredths place (same number of digits) • Subtracts decimals to the hundredths place (same number of digits) without regrouping	a single regrouping • Subtracts 3- or 4-digit numbers with regrouping • Performs mental subtraction with numbers under 1000 • Performs mental subtraction with numbers 1000 and over • Subtracts multiple-digit numbers with no regrouping* • Subtracts fractions with like denominators without reducing • 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 • Subtracts decimals to the hundredths place (same number of digits) without regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Subtracts decimals to the thousandths place, vertically, with and without regrouping	• Adds fractions with like denominators without reducing • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)* • Adds whole numbers and fractions • Subtracts fractions with like denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Subtracts whole numbers, fractions, and mixed fractions* • Adds decimals to the hundredths place in vertical format (not same number of digits)* • 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 to the thousandths place, vertically, with and without regrouping • Subtracts decimals through the hundred-thousandths place, vertically*
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• Multiplies basic facts to 10 x 10 vertically • Multiplies a 2-digit number by a 1-digit number with regrouping • Instantly recalls division facts with dividend and divisors less than 10	• 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* • Multiplies a 3-digit number by a 2-digit number with no regrouping • Performs mental computation with multiplication • 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 • Uses strategies to determine 1 missing digit (multiplication/division only) • Evaluates numerical expressions using grouping symbols (whole numbers only)	• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12* • 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 no regrouping* • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Performs mental computation with multiplication • 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 1-digit number by a 1-digit number with a remainder*

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	• Multiplies a decimal by whole number	• 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 4-digit number by a 1-digit number with a remainder* • Divides a 2-digit number by a 2-digit number with a remainder • Divides a 3-digit number by a multiple of 10 • Divides a 4-digit number by a 2-digit number • Evaluates numerical expressions using grouping symbols (whole numbers only) • Evaluates a numerical expression involving more than one operation* • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Multiplies a decimal by whole number • Divides decimal by a whole number
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
Estimation	**Estimation**	**Estimation**
• Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Uses rounding to estimate answers to real-world problems involving addition of numbers less than 100 (whole numbers only)	• Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)* • Uses front end digits to estimate answers in addition and subtraction computations (whole numbers only)* • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Uses rounding to estimate answers to 1-step problems involving answers less than $1 (whole numbers only, e.g., 10 cents + 10 cents)* • Uses rounding to estimate answers to 1-step problems involving answers less than $20 (decimals only, e.g., $1.20 + $2.75)	• 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 • Explains the rules for rounding* • Rounds decimals to the nearest whole number* • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)* • Uses front end digits to estimate answers in addition and subtraction computations (whole numbers only)* • Uses front end estimation for multiplication and division computations (whole numbers only)* • Uses rounding to estimate answers to addition and

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		subtraction problems (whole numbers only) • Uses rounding to estimate answers to simple multiplication and division problems (whole numbers only) • Uses rounding to estimate answers to 1-step problems involving answers $20 or greater (using decimals)* • Uses rounding to estimate answers to 2-step problems involving money (whole numbers only)* • Uses rounding to estimate answers to 2-step problems involving money (using decimals)
New Vocabulary: closest, coins, digit, dozen, even number, factor, fourths, fraction, hundred thousand, hundreds, million, nearest, nickel, number statement, odd number, one, round, row, smallest, symmetrical, ten, ten thousand, thirds, thousandth, unifix cubes, unit, value	*New Vocabulary:* billion, composite number, hundredths, prime number, symbol, thousands, zero	*New Vocabulary:* biggest, column, common multiple, commutative, compatible numbers, expanded numeral, hundred thousands, hundredth, integer, inverse operation, kilowatt, larger, magic square, mixed number, multiple, place value, ten thousands, twice
New Signs and Symbols: { } set notation, ÷ division, long division symbol	*New Signs and Symbols:* ≈ approximately equal to, > greater than, ≥ greater than or equal to, < less than, ≤ less than or equal to, R remainder	*New Signs and Symbols:* ? a variable, − negative number

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 201 - 210

Skills and Concepts to Enhance 191 - 200	Skills and Concepts to Develop 201 - 210	Skills and Concepts to Introduce 211 - 220
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Identifies the numeral and written name for ordinal numbers 21st to100th (e.g., 21st is twenty-first, and vice versa)* • Represents 1/3 with a diagram or model • Identifies one-half from a region or set* • 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 a decimal on a number line to the tenths place*	• Identifies a whole number that comes before and/or after a given number (over 100)* • Identifies halves of a region using nonadjacent parts • Writes a number "squared" in factored form*	• Writes improper fractions and mixed numbers from a visual representation* • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)* • Represents a decimal to the hundredths place (e.g., three hundredths = 0.03) • Writes a decimal for a shaded region to the tenths place* • Identifies an integer from a number line • Uses correct terminology for integers* • Writes a power as a product of multiplied numbers and vice versa (e.g., 2^4 = 2 x 2 x 2 x 2) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• 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	• 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 the place value and value of each digit to the tenths*	• Writes whole numbers in standard and expanded form through the hundred thousands • Identifies the place value and value of each digit to the tenths* • Applies base ten place value concepts to solve problems using decimals (analysis)*
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
• Identifies the value of a collection of coins to $1.00 (without picture of coins) • Adds money with regrouping • Identifies the value of a collection of coins and bills to $10.00 by "counting on" (without picture of money) • Identifies the value of a collection of coins and bills to	• Finds equivalent combinations of dollars and cents with the same value*	

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\$100.00 by "counting on"* • Finds equivalent combinations of coins with the same value* • Finds equivalent combinations of dollars and cents with the same value* • Makes change to \$1.00 by "counting on" or subtracting		
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• 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 999,999 • 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 = • Orders whole numbers less than 1000* • Orders whole numbers less than 10,000 • Compares and orders money in decimal form • Compares and orders decimals to the thousandths place (same number of digits after decimal)*	• Compares whole numbers through 999,999 • Compares whole numbers through the billions using the symbols <, >, or =* • Orders whole numbers less than 10,000 • Orders whole numbers a million or greater • Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10) • Compares integers on a number line* • Orders integers on a number line*	• 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 • Compares two integers • Orders integers on a number line*
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Counts and converts to dozens with models* • Writes equivalent forms of whole numbers 11 to 20 using addition (e.g., 14 = 7 + 7)* • Writes equivalent forms of whole numbers using multiplication (e.g., 12 = 4 x 3 = 2 x 6 = 2 x 2 x 3)* • Converts to dozens without models • Matches numeric and visual representation of equivalent fractions	• Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)* • Writes mixed numbers as improper fractions and improper fractions as mixed numbers • Writes a terminating decimal as a fraction or mixed number	• Identifies a fractions in lowest terms from a region or set • Identifies eighths, reduced to lowest terms, from a region or set • Expresses "1" in many different ways (e.g., 3/3, 4/4)* • Expresses improper fractions as whole numbers (e.g., 4/2=2)* • Determines simple equivalent fractions using multiples • Converts fractions to lowest terms • Writes mixed numbers as improper fractions and improper fractions as mixed numbers • Expresses a simple fraction as a decimal • Writes a simple mixed fraction as a decimal and vice versa • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • 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 • Writes a basic percent as a decimal and vice versa* • Expresses a percent as a decimal and vice versa

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Number Sense - Apply Number Theory Concepts	Number Sense - Apply Number Theory Concepts	Number Sense - Apply Number Theory Concepts
• Distinguishes between odd and even numbers • Identifies numbers as composite	• Determines multiples of a whole number* • Determines common multiples of whole numbers*	• Recognizes characteristics of odd and even numbers • Determines factors of whole numbers • Completes a factor tree for a number (prime factorization)* • Determines multiples of a whole number* • Determines common multiples of whole numbers* • Identifies numbers as prime • Identifies common factors of two or more numbers* • Identifies the greatest common factor of whole numbers
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
• Writes the missing number in a proportion using basic facts	• Writes the missing number in a proportion using basic facts	• Uses concrete and pictorial models to represent proportions* • Recognizes and writes proportions* • Identifies the percent represented in a 2-D region*
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Uses a number line to construct subtraction facts with subtrahends and minuends through 20 (whole numbers)* • Adds and subtracts whole numbers using place value • Uses repeated subtraction for division* • Models whole number multiplication and division algorithms (e.g., shows multiplication as repeated addition and division as repeated subtraction) • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the zero property of multiplication • Demonstrates an understanding of the multiplicative property of 1 (identity) • Uses models to add and subtract fractions and connect the actions to algorithms*	• Adds and subtracts whole numbers using place value • Uses a number line to model multiplication (whole numbers)* • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)* • Demonstrates an understanding of the associative property of addition* • Demonstrates an understanding of the commutative property of addition • Demonstrates an understanding of the zero property of addition (identity) • Demonstrates an understanding of symmetric property applied to basic addition and subtraction facts (e.g., 10 = 2 + 8 is the same as 2 + 8 = 10 or 7 = 10 - 3 is the same as 10 - 3 = 7)* • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of symmetric property applied to multiplication (e.g., 8 x 4 = 32 is the same as 32 = 8 x 4)* • Recognizes multiplication and division fact families* • Uses models to add and subtract fractions and connect the actions to algorithms* • Uses the commutative property of addition with rational numbers*	• Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)* • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Demonstrates an understanding that division by 0 is undefined*

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Numerical Operations - Add and Subtract	Numerical Operations - Add and Subtract	Numerical Operations - Add and Subtract
• Adds 2-digit to 3-digit number with regrouping • Uses number sense strategies to determine the correct answer for an addition computation* • 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 • Performs mental subtraction with numbers 1000 and over • Subtracts multiple-digit numbers with no regrouping* • Subtracts fractions with like denominators without reducing • 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 • Subtracts decimals to the hundredths place (same number of digits) without regrouping • Subtracts decimals to the hundredths place (same number of digits) with regrouping • Subtracts decimals to the thousandths place, vertically, with and without regrouping	• Instantly recalls basic addition facts with sums to 18 in a table* • Uses reasoning strategies to solve magic squares and related puzzles (addition, whole numbers only) • 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 • Performs mental subtraction with numbers 1000 and over • Subtracts numbers with 5 digits or more with regrouping • Uses strategies to determine 2 or more missing digits (addition/subtraction only) • Adds fractions with like denominators without reducing • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)* • Adds whole numbers and fractions • Subtracts fractions with like denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Subtracts whole numbers, fractions, and mixed fractions* • Adds decimals to the hundredths place in vertical format (not same number of digits)* • 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 to the thousandths place, vertically, with and without regrouping • Subtracts decimals through the hundred-thousandths place, vertically*	• Uses reasoning strategies to solve magic squares and related puzzles (addition, whole numbers only) • Subtracts numbers with 5 digits or more with regrouping • Uses strategies to determine 2 or more missing digits (addition/subtraction only) • Adds fractions with like denominators without reducing • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds mixed fractions with like denominators • 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 • 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, vertically, with the zero missing in the ones place* • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Adds integers with like signs
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• 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	• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12* • Instantly recalls basic multiplication and division facts in a table • Multiplies a 2-digit number by a 1-digit number with	• 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

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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* • Multiplies a 3-digit number by a 2-digit number with no regrouping • Performs mental computation with multiplication • 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 • Uses strategies to determine 1 missing digit (multiplication/division only) • Evaluates numerical expressions using grouping symbols (whole numbers only) • Multiplies a decimal by whole number	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 no regrouping* • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Performs mental computation with multiplication • 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 1-digit number by a 1-digit number with a remainder* • 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 4-digit number by a 1-digit number with a remainder* • Divides a 2-digit number by a 2-digit number with a remainder • Divides a 3-digit number by a multiple of 10 • Divides a 4-digit number by a 2-digit number • Evaluates numerical expressions using grouping symbols (whole numbers only) • Evaluates a numerical expression involving more than one operation* • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Multiplies a decimal by whole number • Divides decimal by a whole number	regrouping • Performs mental computation with multiplication • 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 4-digit number by a 1-digit number with a remainder* • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Solves problems using the inverse relationship between multiplication and division • Divides a whole number by a whole number and expresses the remainder as a decimal* • Divides multiple-digit numbers • Uses strategies to determine 2 or more missing digits (multiplication/division only)* • Evaluates a numerical expression involving more than one operation* • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • 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 • Multiplies integers with unlike signs* • Divides integers with unlike signs*
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
		• Calculates the value of a power (e.g., 2^3 = 8) • Solves problems involving equivalent fractions*

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		• Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)
Estimation	**Estimation**	**Estimation**
• Rounds 2- and 3- digit whole numbers to the nearest ten • Rounds 3-digit whole numbers to the nearest hundred • Uses rounding to estimate answers to real-world problems involving numbers less than 1000 with addition and subtraction (whole numbers only)* • Uses front end digits to estimate answers in addition and subtraction computations (whole numbers only)* • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Uses rounding to estimate answers to 1-step problems involving answers less than $1 (whole numbers only, e.g., 10 cents + 10 cents)* • Uses rounding to estimate answers to 1-step problems involving answers less than $20 (decimals only, e.g., $1.20 + $2.75)	• 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 • Explains the rules for rounding* • Rounds decimals to the nearest whole number* • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)* • Uses front end digits to estimate answers in addition and subtraction computations (whole numbers only)* • Uses front end estimation for multiplication and division computations (whole numbers only)* • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Uses rounding to estimate answers to simple multiplication and division problems (whole numbers only) • Uses rounding to estimate answers to 1-step problems involving answers $20 or greater (using decimals)* • Uses rounding to estimate answers to 2-step problems involving money (whole numbers only)* • Uses rounding to estimate answers to 2-step problems involving money (using decimals)	• 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 decimals to the nearest whole number* • Rounds decimals to the nearest tenth • 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 real-world problems involving numbers 1000 or greater using 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 1-step problems involving answers $20 or greater (using decimals)* • Uses rounding to estimate answers to 2-step problems involving money (using decimals) • Uses referent numbers to estimate answers when adding and subtracting fractions and mixed numbers* • Predicts the relative size of the answer when adding whole numbers* • Predicts the relative size of the answer when subtracting whole numbers* • Predicts the relative size of the answer when computing with 10's, 100's, 1000's • Predicts the relative size of the answer when multiplying whole numbers
New Vocabulary: billion, composite number, hundredths, prime number, symbol, thousands, zero	*New Vocabulary:* biggest, column, common multiple, commutative, compatible numbers, expanded numeral, hundred thousands, hundredth, integer, inverse operation, kilowatt, larger, magic square, mixed number, multiple, place value, ten thousands, twice	*New Vocabulary:* common factor, decimal, decimal form, decimal point, factor tree, greatest common factor, lowest terms, negative, positive, proof, reduce, region, standard form
New Signs and Symbols: ≈ approximately equal to, > greater than, ≥ greater than or equal to, < less than, ≤ less	*New Signs and Symbols:* ? a variable, − negative number	*New Signs and Symbols:* ( ) parenthesis around an integer, − negative sign, ≠ not equal to, % percent, + positive

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than or equal to, R remainder		number

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 211 - 220

Skills and Concepts to Enhance 201 - 210	Skills and Concepts to Develop 211 - 220	Skills and Concepts to Introduce 221 - 230
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Identifies a whole number that comes before and/or after a given number (over 100)* • Identifies halves of a region using nonadjacent parts • Writes a number "squared" in factored form*	• Writes improper fractions and mixed numbers from a visual representation* • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)* • Represents a decimal to the hundredths place (e.g., three hundredths = 0.03) • Writes a decimal for a shaded region to the tenths place* • Identifies an integer from a number line • Uses correct terminology for integers* • Writes a power as a product of multiplied numbers and vice versa (e.g., 2^4 = 2 x 2 x 2 x 2) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000	• Uses alternative algorithms to explain the meaning of "fraction"* • Represents a decimal to thousandths place (e.g., three thousandths = 0.003) • Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0. 00003)* • Writes a decimal for a shaded region to the hundredths place • Locates rational numbers on a number line • Writes a power as a product of multiplied numbers and vice versa (e.g., 2^4 = 2 x 2 x 2 x 2) • Uses powers of 10 to represent numbers (e.g., 8 x 10^3 = 8000) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000 • Compares numbers written exponentially • Defines "absolute value"*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• 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 the place value and value of each digit to the tenths*	• Writes whole numbers in standard and expanded form through the hundred thousands • Identifies the place value and value of each digit to the tenths* • Applies base ten place value concepts to solve problems using decimals (analysis)*	• Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones) • Writes whole numbers in standard and exponential form • Identifies the place value and value of each digit to the hundredths and thousandths • Identifies the place value and value of each digit in numbers through the ten thousandths and beyond
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
• Finds equivalent combinations of dollars and cents with the same value*		
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• Compares whole numbers through 999,999	• Compares fractions on a number line	• Determines the relative magnitude of whole numbers*

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• Compares whole numbers through the billions using the symbols <, >, or =* • Orders whole numbers less than 10,000 • Orders whole numbers a million or greater • Compares fractions (e.g., common denominator, 1 in the numerator, denominator is 2, 3, 4, 6, 8, 10) • Compares integers on a number line* • Orders integers 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 • Compares two integers • Orders integers on a number line*	• Orders whole numbers a million or greater using < or > symbols* • Compares fractions (e.g., comparing numerators and denominators) • Orders fractions on a number line* • Compares and orders decimals to the hundredths place (not same number of digits after decimal)* • Compares and orders decimals to the thousandths place (not same number of digits after decimal) • Compares and orders decimals past the thousandths place* • Compares two integers • Orders integers • Orders rational numbers, in a/b form* • Orders fractions and decimals to the hundred thousandths
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Converts a basic fractional numeral to lowest terms (e.g., halves, thirds, quarters)* • Writes mixed numbers as improper fractions and improper fractions as mixed numbers • Writes a terminating decimal as a fraction or mixed number	• Identifies a fractions in lowest terms from a region or set • Identifies eighths, reduced to lowest terms, from a region or set • Expresses "1" in many different ways (e.g., 3/3, 4/4)* • Expresses improper fractions as whole numbers (e.g., 4/2=2)* • Determines simple equivalent fractions using multiples • Converts fractions to lowest terms • Writes mixed numbers as improper fractions and improper fractions as mixed numbers • Expresses a simple fraction as a decimal • Writes a simple mixed fraction as a decimal and vice versa • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • 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 • Writes a basic percent as a decimal and vice versa* • Expresses a percent as a decimal and vice versa	• Identifies a fractions in lowest terms from a region or set • Determines simple equivalent fractions using multiples • Determines equivalent fractions using multiples • Writes a simple mixed fraction as a decimal and vice versa • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • 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* • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)*
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
• Determines multiples of a whole number* • Determines common multiples of whole numbers*	• Recognizes characteristics of odd and even numbers • Determines factors of whole numbers • Completes a factor tree for a number (prime	• Recognizes characteristics of odd and even numbers • Determines factors of whole numbers • Completes a factor tree for a number (prime

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	factorization)* • Determines multiples of a whole number* • Determines common multiples of whole numbers* • Identifies numbers as prime • Identifies common factors of two or more numbers* • Identifies the greatest common factor of whole numbers	factorization)* • Determines common denominators of fractions • Identifies common factors of two or more numbers* • Identifies the greatest common factor of whole numbers
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
• Writes the missing number in a proportion using basic facts	• Uses concrete and pictorial models to represent proportions* • Recognizes and writes proportions* • Identifies the percent represented in a 2-D region*	• 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) • Identifies the percent represented in a given model*
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Adds and subtracts whole numbers using place value • Uses a number line to model multiplication (whole numbers)* • Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)* • Demonstrates an understanding of the associative property of addition* • Demonstrates an understanding of the commutative property of addition • Demonstrates an understanding of the zero property of addition (identity) • Demonstrates an understanding of symmetric property applied to basic addition and subtraction facts (e.g., 10 = 2 + 8 is the same as 2 + 8 = 10 or 7 = 10 - 3 is the same as 10 - 3 = 7)* • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of symmetric property applied to multiplication (e.g., 8 x 4 = 32 is the same as 32 = 8 x 4)* • Recognizes multiplication and division fact families* • Uses models to add and subtract fractions and connect the actions to algorithms* • Uses the commutative property of addition with rational numbers*	• Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)* • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Demonstrates an understanding that division by 0 is undefined*	• Models algorithms using place value concepts (addition and subtraction with whole numbers)* • Models algorithms using place value concepts (multiplication and division with whole numbers)* • Demonstrates an understanding of the commutative property of multiplication with complex problems (e.g., parenthesis, 3 factors) • Demonstrates an understanding of multiple properties • Uses a number line to determine the midpoint between a positive and negative number* • Uses the distributive property
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Instantly recalls basic addition facts with sums to 18 in a table* • Uses reasoning strategies to solve magic squares and	• Uses reasoning strategies to solve magic squares and related puzzles (addition, whole numbers only) • Subtracts numbers with 5 digits or more with	• Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without

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related puzzles (addition, whole numbers only) • 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 • Performs mental subtraction with numbers 1000 and over • Subtracts numbers with 5 digits or more with regrouping • Uses strategies to determine 2 or more missing digits (addition/subtraction only) • Adds fractions with like denominators without reducing • Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)* • Adds whole numbers and fractions • Subtracts fractions with like denominators without reducing • Subtracts mixed fractions with like denominators with no regrouping • Subtracts whole numbers, fractions, and mixed fractions* • Adds decimals to the hundredths place in vertical format (not same number of digits)* • 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 to the thousandths place, vertically, with and without regrouping • Subtracts decimals through the hundred-thousandths place, vertically*	regrouping • Uses strategies to determine 2 or more missing digits (addition/subtraction only) • Adds fractions with like denominators without reducing • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds mixed fractions with like denominators • 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 • 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, vertically, with the zero missing in the ones place* • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Adds integers with like signs	reducing • Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds whole numbers, fractions, and mixed fractions without reducing • 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 with regrouping • 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 • Adds integers with unlike signs • Adds several positive and negative integers • Adds rational expressions in decimal form
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• Instantly recalls basic multiplication facts where one factor is 6-12 and the other factor is 0-12* • 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	• 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 • Performs mental computation with multiplication • Multiplies a 3-digit number by a 3-digit number • Multiplies a 4- or more digit number by multiples of	• Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products)* • Multiplies multiple-digit numbers • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Divides numbers by powers of 10* • Multiplies a fraction by a fraction without reducing to simplest form (complex problem)

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no regrouping* • Multiplies a 2-digit number by a 2-digit number with regrouping • Multiplies a 3-digit number by a 2-digit number with regrouping • Performs mental computation with multiplication • 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 1-digit number by a 1-digit number with a remainder* • 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 4-digit number by a 1-digit number with a remainder* • Divides a 2-digit number by a 2-digit number with a remainder • Divides a 3-digit number by a multiple of 10 • Divides a 4-digit number by a 2-digit number • Evaluates numerical expressions using grouping symbols (whole numbers only) • Evaluates a numerical expression involving more than one operation* • Multiplies a fraction by a fraction without reducing to simplest form (simple problem) • Multiplies a decimal by whole number • Divides decimal by a whole number	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 4-digit number by a 1-digit number with a remainder* • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Solves problems using the inverse relationship between multiplication and division • Divides a whole number by a whole number and expresses the remainder as a decimal* • Divides multiple-digit numbers • Uses strategies to determine 2 or more missing digits (multiplication/division only)* • Evaluates a numerical expression involving more than one operation* • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • 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 • Multiplies integers with unlike signs* • Divides integers with unlike signs*	• Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • Multiplies mixed fractions • Divides a fraction by a fraction • Divides a mixed fraction by a fraction • 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 • Multiplies integers with unlike signs* • Divides integers with unlike signs*
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
	• Calculates the value of a power (e.g., 2^3 = 8) • Solves problems involving equivalent fractions* • Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)	• Predicts the relative size of the answer when dividing whole numbers • Calculates the value of a power (e.g., 2^3 = 8) • 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

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		what) • Adds and subtracts percent
Estimation	**Estimation**	**Estimation**
• 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 • Explains the rules for rounding* • Rounds decimals to the nearest whole number* • Uses rounding to estimate answers to real-world problems involving numbers 1000 or greater with addition and subtraction (whole numbers only)* • Uses front end digits to estimate answers in addition and subtraction computations (whole numbers only)* • Uses front end estimation for multiplication and division computations (whole numbers only)* • Uses rounding to estimate answers to addition and subtraction problems (whole numbers only) • Uses rounding to estimate answers to simple multiplication and division problems (whole numbers only) • Uses rounding to estimate answers to 1-step problems involving answers $20 or greater (using decimals)* • Uses rounding to estimate answers to 2-step problems involving money (whole numbers only)* • Uses rounding to estimate answers to 2-step problems involving money (using decimals)	• 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 decimals to the nearest whole number* • Rounds decimals to the nearest tenth • 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 real-world problems involving numbers 1000 or greater using 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 1-step problems involving answers $20 or greater (using decimals)* • Uses rounding to estimate answers to 2-step problems involving money (using decimals) • Uses referent numbers to estimate answers when adding and subtracting fractions and mixed numbers* • Predicts the relative size of the answer when adding whole numbers* • Predicts the relative size of the answer when subtracting whole numbers* • Predicts the relative size of the answer when computing with 10's, 100's, 1000's • Predicts the relative size of the answer when multiplying whole numbers	• Rounds whole numbers to the nearest million* • Rounds wholes numbers to the nearest billion* • Rounds decimals to the nearest hundredth • 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 real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)* • Uses rounding to estimate answers to real-world problems involving fractions and mixed numbers* • Uses estimation to solve problems involving fractions and mixed numbers • Predicts the relative size of the answer when adding whole numbers* • Predicts the relative size of the answer when subtracting whole numbers*
New Vocabulary: biggest, column, common multiple, commutative, compatible numbers, expanded numeral, hundred thousands, hundredth, integer, inverse operation, kilowatt, larger, magic square, mixed number, multiple, place value, ten thousands, twice	*New Vocabulary:* common factor, decimal, decimal form, decimal point, factor tree, greatest common factor, lowest terms, negative, positive, proof, reduce, region, standard form	*New Vocabulary:* absolute value, borrow, common denominator, compute, expanded notation, exponent, least common denominator, lowest common denominator, real number, ten million, ten thousandth, tenths, thousandths
New Signs and Symbols: ? a variable, − negative number	*New Signs and Symbols:* ( ) parenthesis around an integer, − negative sign, ≠ not equal to, % percent, + positive	*New Signs and Symbols:* °C degrees Celsius, °F degrees Fahrenheit, lb pound, • multiplication symbol (dot), #

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	number	number, × multiplication, = is equal to

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 221 - 230

Skills and Concepts to Enhance 211 - 220	Skills and Concepts to Develop 221 - 230	Skills and Concepts to Introduce 231 - 240
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Writes improper fractions and mixed numbers from a visual representation* • Explains different interpretations of fractions (e.g., parts of a whole, parts of a set, and division of whole numbers by whole numbers)* • Represents a decimal to the hundredths place (e.g., three hundredths = 0.03) • Writes a decimal for a shaded region to the tenths place* • Identifies an integer from a number line • Uses correct terminology for integers* • Writes a power as a product of multiplied numbers and vice versa (e.g., 2^4 = 2 x 2 x 2 x 2) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000	• Uses alternative algorithms to explain the meaning of "fraction"* • Represents a decimal to thousandths place (e.g., three thousandths = 0.003) • Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0. 00003)* • Writes a decimal for a shaded region to the hundredths place • Locates rational numbers on a number line • Writes a power as a product of multiplied numbers and vice versa (e.g., 2^4 = 2 x 2 x 2 x 2) • Uses powers of 10 to represent numbers (e.g., 8 x 10^3 = 8000) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000 • Compares numbers written exponentially • Defines "absolute value"*	• Uses powers of 10 to represent numbers (e.g., 8 x 10^3 = 8000) • Compares numbers written exponentially • Uses correct terminology for powers* • Writes a number expressed in scientific notation in standard form* • Writes a whole number in scientific notation • Writes a decimal in scientific notation* • Represents absolute value using positive and negative numbers*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• Writes whole numbers in standard and expanded form through the hundred thousands • Identifies the place value and value of each digit to the tenths* • Applies base ten place value concepts to solve problems using decimals (analysis)*	• Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones) • Writes whole numbers in standard and exponential form • Identifies the place value and value of each digit to the hundredths and thousandths • Identifies the place value and value of each digit in numbers through the ten thousandths and beyond	• Writes whole numbers in standard and exponential form
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• 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	• Determines the relative magnitude of whole numbers* • Orders whole numbers a million or greater using < or > symbols* • Compares fractions (e.g., comparing numerators and denominators)	• Compares fractions (e.g., comparing numerators and denominators) • Orders rational numbers, in a/b form* • Compares and orders decimal and fractional coordinates on a number line*

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• Compares two integers • Orders integers on a number line*	• Orders fractions on a number line* • Compares and orders decimals to the hundredths place (not same number of digits after decimal)* • Compares and orders decimals to the thousandths place (not same number of digits after decimal) • Compares and orders decimals past the thousandths place* • Compares two integers • Orders integers • Orders rational numbers, in a/b form* • Orders fractions and decimals to the hundred thousandths	• Estimates relative magnitude of fractions, decimals, and percents* • Orders fractions, decimals, and percents • Orders fractions, decimals, and integers on a number line*
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Identifies a fractions in lowest terms from a region or set • Identifies eighths, reduced to lowest terms, from a region or set • Expresses "1" in many different ways (e.g., 3/3, 4/4)* • Expresses improper fractions as whole numbers (e.g., 4/2=2)* • Determines simple equivalent fractions using multiples • Converts fractions to lowest terms • Writes mixed numbers as improper fractions and improper fractions as mixed numbers • Expresses a simple fraction as a decimal • Writes a simple mixed fraction as a decimal and vice versa • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • 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 • Writes a basic percent as a decimal and vice versa* • Expresses a percent as a decimal and vice versa	• Identifies a fractions in lowest terms from a region or set • Determines simple equivalent fractions using multiples • Determines equivalent fractions using multiples • Writes a simple mixed fraction as a decimal and vice versa • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • 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* • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)*	• Writes a ratio as a decimal and vice versa* • Writes a fraction as a decimal and vice versa • Writes a fraction as a mixed decimal and vice versa* • Expresses a decimal as a whole number (e.g., 1.3 thousand = ?)* • Expresses a percent as a fraction and vice versa • Writes a ratio as a percent and vice versa*
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
• Recognizes characteristics of odd and even numbers • Determines factors of whole numbers • Completes a factor tree for a number (prime factorization)* • Determines multiples of a whole number* • Determines common multiples of whole numbers* • Identifies numbers as prime	• Recognizes characteristics of odd and even numbers • Determines factors of whole numbers • Completes a factor tree for a number (prime factorization)* • Determines common denominators of fractions • Identifies common factors of two or more numbers* • Identifies the greatest common factor of whole	• Determines the prime factorization of a number

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• Identifies common factors of two or more numbers* • Identifies the greatest common factor of whole numbers	numbers	
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
• Uses concrete and pictorial models to represent proportions* • Recognizes and writes proportions* • Identifies the percent represented in a 2-D region*	• 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) • Identifies the percent represented in a given model*	• Identifies the ratio from a given real-world situation* • Estimates percent using 2-D regions* • Compares and orders percent*
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Models whole number multiplication and division algorithms (e.g., uses physical materials to show 4 groups of 3 objects)* • Demonstrates an understanding of the inverse relationship between addition and subtraction • Demonstrates an understanding of the commutative property of multiplication with simple problems* • Demonstrates an understanding of the associative property of multiplication • Demonstrates an understanding of the distributive property of multiplication by decomposing a term* • Recognizes multiplication and division fact families* • Uses the commutative property of addition with rational numbers* • Demonstrates an understanding that division by 0 is undefined*	• Models algorithms using place value concepts (addition and subtraction with whole numbers)* • Models algorithms using place value concepts (multiplication and division with whole numbers)* • Demonstrates an understanding of the commutative property of multiplication with complex problems (e.g., parenthesis, 3 factors) • Demonstrates an understanding of multiple properties • Uses a number line to determine the midpoint between a positive and negative number* • Uses the distributive property	• Models algorithms using place value concepts (addition and subtraction with whole numbers)* • Models algorithms using place value concepts (multiplication and division with whole numbers)* • Uses models to multiply and divide fractions and connect the actions to algorithms* • Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms* • Identifies the distributive property* • Uses the distributive property
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Uses reasoning strategies to solve magic squares and related puzzles (addition, whole numbers only) • Subtracts numbers with 5 digits or more with regrouping • Uses strategies to determine 2 or more missing digits (addition/subtraction only) • Adds fractions with like denominators without reducing • Adds fractions with like denominators with reducing or converting to a mixed fraction • Adds fractions with unlike denominators without reducing • Adds mixed fractions with like denominators • 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,	• 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 whole numbers, fractions, and mixed fractions without reducing • 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	• Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds whole numbers, fractions, and mixed fractions without reducing • Adds mixed fractions where converting from improper fractions is necessary • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Subtracts a decimal from a whole number, horizontally • Adds integers with unlike signs • Adds several positive and negative integers • Subtracts integers* • Subtracts rational expressions in decimal form*

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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 • 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, vertically, with the zero missing in the ones place* • Subtracts decimals to the thousandths place, horizontally, with and without regrouping • Adds integers with like signs	with no regrouping • Subtracts whole numbers, fractions, and mixed fractions with regrouping • 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 • Adds integers with unlike signs • Adds several positive and negative integers • Adds rational expressions in decimal form	
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• 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 • Performs mental computation with multiplication • 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 4-digit number by a 1-digit number with a remainder* • Divides a 3-digit number by a 2-digit number • Divides a 4-digit number by a 2-digit number • Solves problems using the inverse relationship between multiplication and division • Divides a whole number by a whole number and expresses the remainder as a decimal* • Divides multiple-digit numbers • Uses strategies to determine 2 or more missing digits	• Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products)* • Multiplies multiple-digit numbers • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Divides numbers by powers of 10* • 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 • Divides a fraction by a fraction • Divides a mixed fraction by a fraction • 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 • Multiplies integers with unlike signs*	• Divides multiple-digit numbers • Uses appropriate algorithms to represent multiplication or 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) • Multiplies mixed fractions • Divides a fraction by a fraction • Divides a fraction by a whole number • Divides a whole number by a fraction* • Divides a mixed fraction by a whole number* • Divides a whole number by a mixed fraction* • Divides a mixed fraction by a fraction • Divides a fraction by a mixed fraction* • Divides a mixed fraction by a mixed fraction • 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 • Multiplies integers with like signs* • Divides integers with like signs* • Evaluates numerical expressions using the order of operations (using integers)* • Multiplies rational expressions*

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(multiplication/division only)* • Evaluates a numerical expression involving more than one operation* • Multiplies a fraction by a fraction where reducing to simplest form is necessary • Multiplies a fraction by a whole number • 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 • Multiplies integers with unlike signs* • Divides integers with unlike signs*	• Divides integers with unlike signs*	• Divides rational expressions in a/b form* • Calculates sums combining fractions, decimals, and percents
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
• Calculates the value of a power (e.g., 2^3 = 8) • Solves problems involving equivalent fractions* • Calculates basic percents of a number (e.g., 10%, 20%, 25%, 50%, 100%)	• Predicts the relative size of the answer when dividing whole numbers • Calculates the value of a power (e.g., 2^3 = 8) • 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) • Adds and subtracts percent	• Calculates the power of a number (e.g., 8 = 2^3) • Evaluates expressions containing powers (e.g., 3^2 x 2^3) • Applies rules for multiplying and dividing powers • Calculates the positive square root of a perfect square • Solves problems involving equivalent fractions (analysis)* • 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)
Estimation	**Estimation**	**Estimation**
• 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 decimals to the nearest whole number* • Rounds decimals to the nearest tenth • 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 real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)* • Uses rounding to estimate answers to difficult multiplication and division problems (whole numbers	• Rounds whole numbers to the nearest million* • Rounds wholes numbers to the nearest billion* • Rounds decimals to the nearest hundredth • 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 real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)* • Uses rounding to estimate answers to real-world problems involving fractions and mixed numbers* • Uses estimation to solve problems involving fractions and mixed numbers • Predicts the relative size of the answer when adding whole numbers*	• Rounds decimals to the nearest hundredth • Rounds decimals to nearest thousandth* • Rounds decimals to nearest ten-thousandth* • Uses estimation to solve problems involving decimals • Determines the most accurate answer (fractions only)* • Uses estimation to solve problems involving proportional reasoning (decimals only) • Predicts the relative size of the answer when dividing a smaller whole number by a larger whole number • Describes the effects of multiplying a number by a number between 0 and 1*

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only) • Uses rounding to estimate answers to 1-step problems involving answers $20 or greater (using decimals)* • Uses rounding to estimate answers to 2-step problems involving money (using decimals) • Uses referent numbers to estimate answers when adding and subtracting fractions and mixed numbers* • Predicts the relative size of the answer when adding whole numbers* • Predicts the relative size of the answer when subtracting whole numbers* • Predicts the relative size of the answer when computing with 10's, 100's, 1000's • Predicts the relative size of the answer when multiplying whole numbers	• Predicts the relative size of the answer when subtracting whole numbers*	
New Vocabulary: common factor, decimal, decimal form, decimal point, factor tree, greatest common factor, lowest terms, negative, positive, proof, reduce, region, standard form	*New Vocabulary:* absolute value, borrow, common denominator, compute, expanded notation, exponent, least common denominator, lowest common denominator, real number, ten million, ten thousandth, tenths, thousandths	*New Vocabulary:* cubed, discount, equality, identity element, prime factor, prime factorization, scientific notation, square region, tenth power
New Signs and Symbols: ( ) parenthesis around an integer, − negative sign, ≠ not equal to, % percent, + positive number	*New Signs and Symbols:* °C degrees Celsius, °F degrees Fahrenheit, lb pound, • multiplication symbol (dot), # number, × multiplication, = is equal to	*New Signs and Symbols:* [ ] square brackets, ft feet, • point, : ratio, segment overbar, square root symbol, – subtraction

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 231 - 240

Skills and Concepts to Enhance 221 - 230	Skills and Concepts to Develop 231 - 240	Skills and Concepts to Introduce 241 - 250
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Uses alternative algorithms to explain the meaning of "fraction"* • Represents a decimal to thousandths place (e.g., three thousandths = 0.003) • Represents a decimal to the hundred thousandths place - (e.g., three hundred thousandths = 0. 00003)* • Writes a decimal for a shaded region to the hundredths place • Locates rational numbers on a number line • Writes a power as a product of multiplied numbers and vice versa (e.g., 2^4 = 2 x 2 x 2 x 2) • Uses powers of 10 to represent numbers (e.g., 8 x 10^3 = 8000) • Uses powers to represent 10, 100, 1000, 10,000, and 100,000 • Compares numbers written exponentially • Defines "absolute value"*	• Uses powers of 10 to represent numbers (e.g., 8 x 10^3 = 8000) • Compares numbers written exponentially • Uses correct terminology for powers* • Writes a number expressed in scientific notation in standard form* • Writes a whole number in scientific notation • Writes a decimal in scientific notation* • Represents absolute value using positive and negative numbers*	• Writes a number expressed in scientific notation in standard form* • Writes a whole number in scientific notation • Writes a decimal in scientific notation*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• Writes equivalent forms of whole numbers using place value (numbers 100 or greater) (e.g., 253 = 2 hundreds, 5 tens, and 3 ones) • Writes whole numbers in standard and exponential form • Identifies the place value and value of each digit to the hundredths and thousandths • Identifies the place value and value of each digit in numbers through the ten thousandths and beyond	• Writes whole numbers in standard and exponential form	
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• Determines the relative magnitude of whole numbers* • Orders whole numbers a million or greater using < or > symbols* • Compares fractions (e.g., comparing numerators and denominators)	• Compares fractions (e.g., comparing numerators and denominators) • Orders rational numbers, in a/b form* • Compares and orders decimal and fractional coordinates on a number line*	

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Orders fractions on a number line* • Compares and orders decimals to the hundredths place (not same number of digits after decimal)* • Compares and orders decimals to the thousandths place (not same number of digits after decimal) • Compares and orders decimals past the thousandths place* • Compares two integers • Orders integers • Orders rational numbers, in a/b form* • Orders fractions and decimals to the hundred thousandths	• Estimates relative magnitude of fractions, decimals, and percents* • Orders fractions, decimals, and percents • Orders fractions, decimals, and integers on a number line*	
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Identifies a fractions in lowest terms from a region or set • Determines simple equivalent fractions using multiples • Determines equivalent fractions using multiples • Writes a simple mixed fraction as a decimal and vice versa • Writes a fraction or mixed number as a decimal when the denominator is a multiple of 10 • 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* • Expresses the equivalent form of a fraction, decimal, and/or percent (simple fraction)*	• Writes a ratio as a decimal and vice versa* • Writes a fraction as a decimal and vice versa • Writes a fraction as a mixed decimal and vice versa* • Expresses a decimal as a whole number (e.g., 1.3 thousand = ?)* • Expresses a percent as a fraction and vice versa • Writes a ratio as a percent and vice versa*	• Expresses the equivalent form of a fraction, decimal, and/or percent (complex fraction)*
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
• Recognizes characteristics of odd and even numbers • Determines factors of whole numbers • Completes a factor tree for a number (prime factorization)* • Determines common denominators of fractions • Identifies common factors of two or more numbers* • Identifies the greatest common factor of whole numbers	• Determines the prime factorization of a number	• Determines the prime factorization of a number using powers • Identifies the least common multiple of whole numbers* • Identifies the greatest common factor and least common multiple of multiple whole numbers*
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
• 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) • Identifies the percent represented in a given model*	• Identifies the ratio from a given real-world situation* • Estimates percent using 2-D regions* • Compares and orders percent*	• Identifies the ratio from a given real-world situation*
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Models algorithms using place value concepts (addition and subtraction with whole numbers)*	• Models algorithms using place value concepts (addition and subtraction with whole numbers)*	• Uses a number line to determine the distance between a positive and negative number

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Models algorithms using place value concepts (multiplication and division with whole numbers)* • Demonstrates an understanding of the commutative property of multiplication with complex problems (e.g., parenthesis, 3 factors) • Demonstrates an understanding of multiple properties • Uses a number line to determine the midpoint between a positive and negative number* • Uses the distributive property	• Models algorithms using place value concepts (multiplication and division with whole numbers)* • Uses models to multiply and divide fractions and connect the actions to algorithms* • Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms* • Identifies the distributive property* • Uses the distributive property	• Identifies the associative property of addition* • Uses the multiplicative inverse property with rational numbers*
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• 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 whole numbers, fractions, and mixed fractions without reducing • 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 with regrouping • 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 • Adds integers with unlike signs • Adds several positive and negative integers • Adds rational expressions in decimal form	• Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds whole numbers, fractions, and mixed fractions without reducing • Adds mixed fractions where converting from improper fractions is necessary • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Subtracts a decimal from a whole number, horizontally • Adds integers with unlike signs • Adds several positive and negative integers • Subtracts integers* • Subtracts rational expressions in decimal form*	• Subtracts integers*

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Numerical Operations - Multiply and Divide	Numerical Operations - Multiply and Divide	Numerical Operations - Multiply and Divide
• Uses multiplication strategies to explain computation (e.g., doubles, 9-patterns, decomposing, partial products)* • Multiplies multiple-digit numbers • Divides a 4-digit number by a 2-digit number • Divides multiple-digit numbers • Divides numbers by powers of 10* • 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 • Divides a fraction by a fraction • Divides a mixed fraction by a fraction • 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 • Multiplies integers with unlike signs* • Divides integers with unlike signs*	• Divides multiple-digit numbers • Uses appropriate algorithms to represent multiplication or 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) • Multiplies mixed fractions • Divides a fraction by a fraction • Divides a fraction by a whole number • Divides a whole number by a fraction* • Divides a mixed fraction by a whole number* • Divides a whole number by a mixed fraction* • Divides a mixed fraction by a fraction • Divides a fraction by a mixed fraction* • Divides a mixed fraction by a mixed fraction • 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 • Multiplies integers with like signs* • Divides integers with like signs* • Evaluates numerical expressions using the order of operations (using integers)* • Multiplies rational expressions* • Divides rational expressions in a/b form* • Calculates sums combining fractions, decimals, and percents	• Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Evaluates expressions using the order of operations, including exponents (using integers)*
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
• Predicts the relative size of the answer when dividing whole numbers • Calculates the value of a power (e.g., 2^3 = 8) • 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) • Adds and subtracts percent	• Calculates the power of a number (e.g., 8 = 2^3) • Evaluates expressions containing powers (e.g., 3^2 x 2^3) • Applies rules for multiplying and dividing powers • Calculates the positive square root of a perfect square • Solves problems involving equivalent fractions (analysis)* • 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)	• Simplifies rational expressions with exponents* • 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)
Estimation	**Estimation**	**Estimation**
• Rounds whole numbers to the nearest million* • Rounds wholes numbers to the nearest billion*	• Rounds decimals to the nearest hundredth • Rounds decimals to nearest thousandth*	• Uses estimation to solve problems involving decimals • Estimates the square roots of numbers

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• Rounds decimals to the nearest hundredth • 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 real-world problems involving numbers 1000 or greater using multiplication and division (whole numbers only)* • Uses rounding to estimate answers to real-world problems involving fractions and mixed numbers* • Uses estimation to solve problems involving fractions and mixed numbers • Predicts the relative size of the answer when adding whole numbers* • Predicts the relative size of the answer when subtracting whole numbers*	• Rounds decimals to nearest ten-thousandth* • Uses estimation to solve problems involving decimals • Determines the most accurate answer (fractions only)* • Uses estimation to solve problems involving proportional reasoning (decimals only) • Predicts the relative size of the answer when dividing a smaller whole number by a larger whole number • Describes the effects of multiplying a number by a number between 0 and 1*	
New Vocabulary: absolute value, borrow, common denominator, compute, expanded notation, exponent, least common denominator, lowest common denominator, real number, ten million, ten thousandth, tenths, thousandths	*New Vocabulary:* cubed, discount, equality, identity element, prime factor, prime factorization, scientific notation, square region, tenth power	*New Vocabulary:* least common multiple
New Signs and Symbols: °C degrees Celsius, °F degrees Fahrenheit, lb pound, • multiplication symbol (dot), # number, × multiplication, = is equal to	*New Signs and Symbols:* [ ] square brackets, ft feet, • point, : ratio, segment overbar, square root symbol, – subtraction	*New Signs and Symbols:* LCM lowest common multiple

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 241 - 250

Skills and Concepts to Enhance 231 - 240	Skills and Concepts to Develop 241 - 250	Skills and Concepts to Introduce 251 - 260
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Uses powers of 10 to represent numbers (e.g., 8 x 10^3 = 8000) • Compares numbers written exponentially • Uses correct terminology for powers* • Writes a number expressed in scientific notation in standard form* • Writes a whole number in scientific notation • Writes a decimal in scientific notation* • Represents absolute value using positive and negative numbers*	• Writes a number expressed in scientific notation in standard form* • Writes a whole number in scientific notation • Writes a decimal in scientific notation*	• Uses fractional and negative exponents as optional ways of representing problem situations (e.g., 27^2/3 = (27^1/3)^2 = 9)* • Writes a rational number in scientific notation*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
• Writes whole numbers in standard and exponential form		
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
• Compares fractions (e.g., comparing numerators and denominators) • Orders rational numbers, in a/b form* • Compares and orders decimal and fractional coordinates on a number line* • Estimates relative magnitude of fractions, decimals, and percents* • Orders fractions, decimals, and percents • Orders fractions, decimals, and integers on a number line*		
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Writes a ratio as a decimal and vice versa* • Writes a fraction as a decimal and vice versa • Writes a fraction as a mixed decimal and vice versa* • Expresses a decimal as a whole number (e.g., 1.3 thousand = ?)* • Expresses a percent as a fraction and vice versa • Writes a ratio as a percent and vice versa*	• Expresses the equivalent form of a fraction, decimal, and/or percent (complex fraction)*	• Expresses a percent over 100 or under 1 as a fraction in lowest terms and vice versa*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Number Sense - Apply Number Theory Concepts	Number Sense - Apply Number Theory Concepts	Number Sense - Apply Number Theory Concepts
• Determines the prime factorization of a number	• Determines the prime factorization of a number using powers • Identifies the least common multiple of whole numbers* • Identifies the greatest common factor and least common multiple of multiple whole numbers*	• Solves problems using multiple number theory concepts (e.g., prime, GCF and LCM, multiples, factors)
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
• Identifies the ratio from a given real-world situation* • Estimates percent using 2-D regions* • Compares and orders percent*	• Identifies the ratio from a given real-world situation*	
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Models algorithms using place value concepts (addition and subtraction with whole numbers)* • Models algorithms using place value concepts (multiplication and division with whole numbers)* • Uses models to multiply and divide fractions and connect the actions to algorithms* • Uses models to multiply and divide fractions and mixed fractions and connect the actions to algorithms* • Identifies the distributive property* • Uses the distributive property	• Uses a number line to determine the distance between a positive and negative number • Identifies the associative property of addition* • Uses the multiplicative inverse property with rational numbers*	• Identifies the commutative property of multiplication* • Uses the additive inverse property with rational numbers*
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Adds fractions with unlike denominators with reducing or converting to a mixed fraction • Adds whole numbers, fractions, and mixed fractions without reducing • Adds mixed fractions where converting from improper fractions is necessary • Subtracts whole numbers, fractions, and mixed fractions with regrouping • Subtracts a decimal from a whole number, horizontally • Adds integers with unlike signs • Adds several positive and negative integers • Subtracts integers* • Subtracts rational expressions in decimal form*	• Subtracts integers*	
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• Divides multiple-digit numbers • Uses appropriate algorithms to represent multiplication or division with whole numbers* • Evaluates numerical expressions using the order of operations (whole numbers only) • Evaluates expressions using the order of operations,	• Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of operations (using integers)* • Evaluates expressions using the order of operations, including exponents (using integers)*	

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including exponents (whole numbers only) • Multiplies mixed fractions • Divides a fraction by a fraction • Divides a fraction by a whole number • Divides a whole number by a fraction* • Divides a mixed fraction by a whole number* • Divides a whole number by a mixed fraction* • Divides a mixed fraction by a fraction • Divides a fraction by a mixed fraction* • Divides a mixed fraction by a mixed fraction • 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 • Multiplies integers with like signs* • Divides integers with like signs* • Evaluates numerical expressions using the order of operations (using integers)* • Multiplies rational expressions* • Divides rational expressions in a/b form* • Calculates sums combining fractions, decimals, and percents		
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
• Calculates the power of a number (e.g., 8 = 2^3) • Evaluates expressions containing powers (e.g., 3^2 x 2^3) • Applies rules for multiplying and dividing powers • Calculates the positive square root of a perfect square • Solves problems involving equivalent fractions (analysis)* • 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)	• Simplifies rational expressions with exponents* • 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)	• Simplifies rational expressions with exponents*
Estimation	**Estimation**	**Estimation**
• Rounds decimals to the nearest hundredth • Rounds decimals to nearest thousandth* • Rounds decimals to nearest ten-thousandth* • Uses estimation to solve problems involving decimals • Determines the most accurate answer (fractions only)* • Uses estimation to solve problems involving proportional reasoning (decimals only) • Predicts the relative size of the answer when dividing a smaller whole number by a larger whole number	• Uses estimation to solve problems involving decimals • Estimates the square roots of numbers	

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• Describes the effects of multiplying a number by a number between 0 and 1*		
New Vocabulary: cubed, discount, equality, identity element, prime factor, prime factorization, scientific notation, square region, tenth power	*New Vocabulary:* least common multiple	*New Vocabulary:* none
New Signs and Symbols: [ ] square brackets, ft feet, • point, : ratio, segment overbar, square root symbol, – subtraction	*New Signs and Symbols:* LCM lowest common multiple	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 251 - 260

Skills and Concepts to Enhance 241 - 250	Skills and Concepts to Develop 251 - 260	Skills and Concepts to Introduce 261 - 270
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Writes a number expressed in scientific notation in standard form* • Writes a whole number in scientific notation • Writes a decimal in scientific notation*	• Uses fractional and negative exponents as optional ways of representing problem situations (e.g., 27^2/3 = (27^1/3)^2 = 9)* • Writes a rational number in scientific notation*	• Defines "irrational numbers"*
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Expresses the equivalent form of a fraction, decimal, and/or percent (complex fraction)*	• Expresses a percent over 100 or under 1 as a fraction in lowest terms and vice versa*	
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
• Determines the prime factorization of a number using powers • Identifies the least common multiple of whole numbers* • Identifies the greatest common factor and least common multiple of multiple whole numbers*	• Solves problems using multiple number theory concepts (e.g., prime, GCF and LCM, multiples, factors)	
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
• Identifies the ratio from a given real-world situation*		
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Uses a number line to determine the distance between a positive and negative number • Identifies the associative property of addition* • Uses the multiplicative inverse property with rational numbers*	• Identifies the commutative property of multiplication* • Uses the additive inverse property with rational numbers*	
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
• Subtracts integers*		
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
• Evaluates expressions using the order of operations, including exponents (whole numbers only) • Evaluates numerical expressions using the order of		

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operations (using integers)* • Evaluates expressions using the order of operations, including exponents (using integers)*		
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
• Simplifies rational expressions with exponents* • 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)	• Simplifies rational expressions with exponents*	• Simplifies rational expressions with negative exponents
Estimation	**Estimation**	**Estimation**
• Uses estimation to solve problems involving decimals • Estimates the square roots of numbers		
New Vocabulary: least common multiple	*New Vocabulary:* none	*New Vocabulary:* non-repeating decimal, rational number, repeating, repeating decimal
New Signs and Symbols: LCM lowest common multiple	*New Signs and Symbols:* none	*New Signs and Symbols:* none

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: 261 - 270

Skills and Concepts to Enhance 251 - 260	Skills and Concepts to Develop 261 - 270	Skills and Concepts to Introduce Above 270
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**	**Number Sense - Construct Meaning**
• Uses fractional and negative exponents as optional ways of representing problem situations (e.g., 27^2/3 = (27^1/3)^2 = 9)* • Writes a rational number in scientific notation*	• Defines "irrational numbers"*	
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**	**Number Sense - Understand Place Value**
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**	**Number Sense - Recognize and Use U.S. Currency**
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**	**Number Sense - Compare and Order Numbers**
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**	**Number Sense - Represent Equivalence of Numbers**
• Expresses a percent over 100 or under 1 as a fraction in lowest terms and vice versa*		
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**	**Number Sense - Apply Number Theory Concepts**
• Solves problems using multiple number theory concepts (e.g., prime, GCF and LCM, multiples, factors)		• Identifies the least common multiple of numbers in their prime factored state*
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**	**Number Sense - Use Ratios, Proportions, Percents**
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**	**Numerical Operations - Develop Meanings**
• Identifies the commutative property of multiplication* • Uses the additive inverse property with rational numbers*		
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**	**Numerical Operations - Add and Subtract**
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**	**Numerical Operations - Multiply and Divide**
Numerical Operations - Advanced	**Numerical Operations - Advanced**	**Numerical Operations - Advanced**
• Simplifies rational expressions with exponents*	• Simplifies rational expressions with negative exponents	
Estimation	**Estimation**	**Estimation**
New Vocabulary: none	*New Vocabulary:* non-repeating decimal, rational number, repeating, repeating decimal	*New Vocabulary:* none
New Signs and Symbols: none	*New Signs and Symbols:* none	*New Signs and Symbols:* none

* 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.

Subject: Mathematics
Goal Strand: Number and Numerical Operations
RIT Score Range: Above 270

Skills and Concepts to Enhance 261 - 270	Skills and Concepts to Develop Above 270
Number Sense - Construct Meaning	**Number Sense - Construct Meaning**
• Defines "irrational numbers"*	
Number Sense - Understand Place Value	**Number Sense - Understand Place Value**
Number Sense - Recognize and Use U.S. Currency	**Number Sense - Recognize and Use U.S. Currency**
Number Sense - Compare and Order Numbers	**Number Sense - Compare and Order Numbers**
Number Sense - Represent Equivalence of Numbers	**Number Sense - Represent Equivalence of Numbers**
Number Sense - Apply Number Theory Concepts	**Number Sense - Apply Number Theory Concepts**
	• Identifies the least common multiple of numbers in their prime factored state*
Number Sense - Use Ratios, Proportions, Percents	**Number Sense - Use Ratios, Proportions, Percents**
Numerical Operations - Develop Meanings	**Numerical Operations - Develop Meanings**
Numerical Operations - Add and Subtract	**Numerical Operations - Add and Subtract**
Numerical Operations - Multiply and Divide	**Numerical Operations - Multiply and Divide**
Numerical Operations - Advanced	**Numerical Operations - Advanced**
• Simplifies rational expressions with negative exponents	
Estimation	**Estimation**
New Vocabulary: non-repeating decimal, rational number, repeating, repeating decimal	*New Vocabulary:* none
New Signs and Symbols: none	*New Signs and Symbols:* none

* 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.

Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: Below 161

Skills and Concepts to Develop Below 161	Skills and Concepts to Introduce 161 - 170
Geometric Properties	**Geometric Properties**
• Identifies figures that are the same size and shape • Predicts the shape after unfolding a figure*	• Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle* • Identifies and names a circle* • Identifies sides and vertices of polygons • Identifies bases of a cylinder* • Identifies and names a cone • Compares open and closed figures* • Sorts solid figures and objects according to attributes* • Identifies figures that are the same size and shape
Transforming Shapes	**Transforming Shapes**
Coordinate Geometry	**Coordinate Geometry**
Units of Measurement	**Units of Measurement**
• Compares objects (wider, narrower)* • Compares objects (taller, shorter)* • Identifies time of day (e.g., morning, afternoon)*	• Compares objects (shorter, longer) • Estimates and measures length of an object to the nearest inch using a picture of a ruler* • Orders periods of time (days of the week)*
Measuring Geometric Objects	**Measuring Geometric Objects**
	• Measures length with customary measures to the inch mark* • Measures length with metric measures to the centimeter mark • Tells time to the nearest hour* • Tells time to the nearest half hour • Reads a calendar - no computation required
New Vocabulary: size	*New Vocabulary:* centimeter, circle, corner, cylinder, flat, longest, minute, rectangle, shortest, side, tall, time
New Signs and Symbols: : used with time	*New Signs and Symbols:* cm centimeter/centimetre, ft feet, • point

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 161 - 170

Skills and Concepts to Enhance Below 161	Skills and Concepts to Develop 161 - 170	Skills and Concepts to Introduce 171 - 180
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies figures that are the same size and shape • Predicts the shape after unfolding a figure*	• Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle* • Identifies and names a circle* • Identifies sides and vertices of polygons • Identifies bases of a cylinder* • Identifies and names a cone • Compares open and closed figures* • Sorts solid figures and objects according to attributes* • Identifies figures that are the same size and shape	• Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle* • Identifies and names a circle* • Identifies and names a cube • Recognizes geometric shapes in real-world objects • Identifies spatial sense concepts (e.g., outside, inside, between, over, under, above, below, behind, in front, middle)* • Identifies figures that are similar
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Compares objects (wider, narrower)* • Compares objects (taller, shorter)* • Identifies time of day (e.g., morning, afternoon)*	• Compares objects (shorter, longer) • Estimates and measures length of an object to the nearest inch using a picture of a ruler* • Orders periods of time (days of the week)*	• Estimates and measures length of an object to the nearest centimeter using a picture of a ruler* • Knows the approximate weight of familiar objects • Orders periods of time (months of the year, seasons)* • Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour)
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
	• Measures length with customary measures to the inch mark* • Measures length with metric measures to the centimeter mark • Tells time to the nearest hour* • Tells time to the nearest half hour • Reads a calendar - no computation required	• 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 • Reads Fahrenheit thermometers to the nearest degree*
New Vocabulary: size	*New Vocabulary:* centimeter, circle, corner, cylinder, flat, longest, minute, rectangle, shortest, side, tall, time	*New Vocabulary:* diamond, geometric figure, gram, line segment, metric, morning, outside, quart, quarter, ray, second, similar
New Signs and Symbols: : used with time	*New Signs and Symbols:* cm centimeter/centimetre, ft feet, • point	*New Signs and Symbols:* a.m., °F degrees Fahrenheit, g gram, = is equal to, ? next in sequence, p.m.

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 171 - 180

Skills and Concepts to Enhance 161 - 170	Skills and Concepts to Develop 171 - 180	Skills and Concepts to Introduce 181 - 190
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle* • Identifies and names a circle* • Identifies sides and vertices of polygons • Identifies bases of a cylinder* • Identifies and names a cone • Compares open and closed figures* • Sorts solid figures and objects according to attributes* • Identifies figures that are the same size and shape	• Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle* • Identifies and names a circle* • Identifies and names a cube • Recognizes geometric shapes in real-world objects • Identifies spatial sense concepts (e.g., outside, inside, between, over, under, above, below, behind, in front, middle)* • Identifies figures that are similar	• Identifies points on a line* • Identifies congruent line segments* • Identifies and names multiple shapes (e.g., square, rectangle, triangle, circle)* • Classifies polygons by sides and vertices • Identifies and names a cube • Identifies and names a sphere • Identifies congruent figures • Identifies figures that are similar • Identifies plane figures with line symmetry
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
		• Identifies transformations of plane figures (rotations/turns) • Identifies transformations of plane figures (translations/slides)*
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
		• Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)*
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Compares objects (shorter, longer) • Estimates and measures length of an object to the nearest inch using a picture of a ruler* • Orders periods of time (days of the week)*	• Estimates and measures length of an object to the nearest centimeter using a picture of a ruler* • Knows the approximate weight of familiar objects • Orders periods of time (months of the year, seasons)* • Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour)	• Identifies the appropriate instrument used to measure length* • Selects and uses the appropriate type and size of unit in customary system (length) • Selects and uses the appropriate type and size of unit in customary system (height)* • Knows the approximate size of an inch • Knows the approximate length of familiar objects* • Selects and uses the appropriate type and size of unit in customary system (weight)* • Determines more capacity or less capacity • Selects and uses the appropriate type and size of unit in customary system (capacity)* • Identifies the correct time, given the words, and vice versa

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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		• Selects and uses the appropriate type and size of unit in customary system (time)* • Computes simple conversions among units of time (days, weeks)*
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Measures length with customary measures to the inch mark* • Measures length with metric measures to the centimeter mark • Tells time to the nearest hour* • Tells time to the nearest half hour • Reads a calendar - no computation required	• 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 • Reads Fahrenheit thermometers to the nearest degree*	• Measures length with non-standard units • Measures length with customary measures to the half-inch mark • 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 • Interprets a calendar - some computation required • Reads Fahrenheit thermometers to the nearest degree* • Determines the perimeter of a figure where all sides are labeled • Compares squares (larger, smaller)
New Vocabulary: centimeter, circle, corner, cylinder, flat, longest, minute, rectangle, shortest, side, tall, time	*New Vocabulary:* diamond, geometric figure, gram, line segment, metric, morning, outside, quart, quarter, ray, second, similar	*New Vocabulary:* clock, clockwise, cup, distance, estimation, flip, foot, fourth, gallon, grid, half past, how much time, kilometer, line of symmetry, liter, measurement, millimeter, noon, o'clock, pint, quarter past, quarter to, rectangular solid, rod, rotation, smallest, symmetry, tablespoon, teaspoon, ton, turn, unit, what time, yard
New Signs and Symbols: cm centimeter/centimetre, ft feet, • point	*New Signs and Symbols:* a.m., °F degrees Fahrenheit, g gram, = is equal to, ? next in sequence, p.m.	*New Signs and Symbols:* ( ) ordered pair, : used with time, c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 181 - 190

Skills and Concepts to Enhance 171 - 180	Skills and Concepts to Develop 181 - 190	Skills and Concepts to Introduce 191 - 200
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies and names a triangle • Identifies and names a square • Identifies and names a rectangle* • Identifies and names a circle* • Identifies and names a cube • Recognizes geometric shapes in real-world objects • Identifies spatial sense concepts (e.g., outside, inside, between, over, under, above, below, behind, in front, middle)* • Identifies figures that are similar	• Identifies points on a line* • Identifies congruent line segments* • Identifies and names multiple shapes (e.g., square, rectangle, triangle, circle)* • Classifies polygons by sides and vertices • Identifies and names a cube • Identifies and names a sphere • Identifies congruent figures • Identifies figures that are similar • Identifies plane figures with line symmetry	• Identifies lines* • Identifies parallel lines • Identifies angles* • Identifies points on a circle* • Identifies diagonals of a polygon • Identifies and names a polygon* • Identifies and names a pentagon* • 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* • Identifies position of shapes (e.g., inside, outside, between)* • Identifies figures that are the same size and shape (analysis)* • Identifies congruent figures • Explores maps and relates them to measurements of real distances, using the scale* • Identifies plane figures with line symmetry • Identifies the number of lines of symmetry in plane figures
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
	• Identifies transformations of plane figures (rotations/turns) • Identifies transformations of plane figures (translations/slides)*	• Identifies transformations of plane figures (reflections/flips)
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
	• Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)*	• Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)*

* 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.

Units of Measurement	Units of Measurement	Units of Measurement
• Estimates and measures length of an object to the nearest centimeter using a picture of a ruler* • Knows the approximate weight of familiar objects • Orders periods of time (months of the year, seasons)* • Computes simple conversions among units of time (minutes in an hour, half hour, quarter hour)	• Identifies the appropriate instrument used to measure length* • Selects and uses the appropriate type and size of unit in customary system (length) • Selects and uses the appropriate type and size of unit in customary system (height)* • Knows the approximate size of an inch • Knows the approximate length of familiar objects* • Selects and uses the appropriate type and size of unit in customary system (weight)* • Determines more capacity or less capacity • Selects and uses the appropriate type and size of unit in customary system (capacity)* • Identifies the correct time, given the words, and vice versa • Selects and uses the appropriate type and size of unit in customary system (time)* • Computes simple conversions among units of time (days, weeks)*	• Selects and uses the appropriate type and size of unit in customary system (length) • Selects and uses the appropriate type and size of unit in customary system (height)* • Knows the approximate size of a foot • Knows the approximate size of a mile* • Selects and uses the appropriate type and size of unit in customary system (weight)* • Knows the approximate size of an ounce* • Selects and uses the appropriate type and size of unit in customary system (capacity)* • Knows the approximate size of a pint* • Converts between cups and pints* • Converts between cups, pints, and quarts* • Identifies the correct time, given the words, and vice versa • Orders years* • Selects and uses the appropriate type and size of unit in customary system (time)* • Computes simple conversions among units of time (minutes, hours) • Computes simple conversions among units of time (hours, days)* • Estimates the area of rectangles using square units
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• 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 • Reads Fahrenheit thermometers to the nearest degree*	• Measures length with non-standard units • Measures length with customary measures to the half-inch mark • 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 • Interprets a calendar - some computation required • Reads Fahrenheit thermometers to the nearest degree* • Determines the perimeter of a figure where all sides are labeled • Compares squares (larger, smaller)	• Measures length with non-standard units • Uses balance scale to measure weight of an unknown object* • 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 • Reads Celsius thermometers to the nearest degree • Determines the perimeter of a figure where all sides are labeled • Determines the perimeter of a figure where some sides are labeled
New Vocabulary: diamond, geometric figure, gram, line segment, metric, morning, outside, quart, quarter, ray, second, similar	*New Vocabulary:* clock, clockwise, cup, distance, estimation, flip, foot, fourth, gallon, grid, half past, how much time, kilometer, line of symmetry, liter, measurement, millimeter, noon, o'clock, pint, quarter	*New Vocabulary:* approximate, decade, diagonal, face, inside, intersect, kite, large, oval, parallel, plane, polygon, rectangular, rhombus, same shape, scale, square inch, straight, twist, vertical line

* 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.

	past, quarter to, rectangular solid, rod, rotation, smallest, symmetry, tablespoon, teaspoon, ton, turn, unit, what time, yard	
New Signs and Symbols: a.m., °F degrees Fahrenheit, g gram, = is equal to, ? next in sequence, p.m.	*New Signs and Symbols:* ( ) ordered pair, : used with time, c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon	*New Signs and Symbols:* °C degrees Celsius, " inches, kg kilogram, • multiplication symbol (dot)

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 191 - 200

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies points on a line* • Identifies congruent line segments* • Identifies and names multiple shapes (e.g., square, rectangle, triangle, circle)* • Classifies polygons by sides and vertices • Identifies and names a cube • Identifies and names a sphere • Identifies congruent figures • Identifies figures that are similar • Identifies plane figures with line symmetry	• Identifies lines* • Identifies parallel lines • Identifies angles* • Identifies points on a circle* • Identifies diagonals of a polygon • Identifies and names a polygon* • Identifies and names a pentagon* • 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* • Identifies position of shapes (e.g., inside, outside, between)* • Identifies figures that are the same size and shape (analysis)* • Identifies congruent figures • Explores maps and relates them to measurements of real distances, using the scale* • Identifies plane figures with line symmetry • Identifies the number of lines of symmetry in plane figures	• Identifies the intersection point of two lines* • Identifies intersecting lines • Identifies parallel lines • Identifies angles* • Identifies right angles* • Identifies and names a parallelogram* • Identifies and names a polygon* • Identifies and names a hexagon* • Identifies and names a octagon* • Classifies polygons by sides and angles • 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 • Classifies cylinders by their properties (e.g., base shape, lateral surface shape, vertices)* • Classifies plane figures by the number of lines of symmetry*
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Identifies transformations of plane figures (rotations/turns) • Identifies transformations of plane figures (translations/slides)*	• Identifies transformations of plane figures (reflections/flips)	• Defines transformations*
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)*	• Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)*	• 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)*

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		• Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system* • Locates the origin on a coordinate grid*
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Identifies the appropriate instrument used to measure length* • Selects and uses the appropriate type and size of unit in customary system (length) • Selects and uses the appropriate type and size of unit in customary system (height)* • Knows the approximate size of an inch • Knows the approximate length of familiar objects* • Selects and uses the appropriate type and size of unit in customary system (weight)* • Determines more capacity or less capacity • Selects and uses the appropriate type and size of unit in customary system (capacity)* • Identifies the correct time, given the words, and vice versa • Selects and uses the appropriate type and size of unit in customary system (time)* • Computes simple conversions among units of time (days, weeks)*	• Selects and uses the appropriate type and size of unit in customary system (length) • Selects and uses the appropriate type and size of unit in customary system (height)* • Knows the approximate size of a foot • Knows the approximate size of a mile* • Selects and uses the appropriate type and size of unit in customary system (weight)* • Knows the approximate size of an ounce* • Selects and uses the appropriate type and size of unit in customary system (capacity)* • Knows the approximate size of a pint* • Converts between cups and pints* • Converts between cups, pints, and quarts* • Identifies the correct time, given the words, and vice versa • Orders years* • Selects and uses the appropriate type and size of unit in customary system (time)* • Computes simple conversions among units of time (minutes, hours) • Computes simple conversions among units of time (hours, days)* • Estimates the area of rectangles using square units	• Selects and uses the appropriate type and size of unit in metric system (length) • Selects and uses the appropriate type and size of unit in metric system (height)* • Knows the approximate size of a yard • Knows the approximate size of a centimeter • Converts between inches and feet • Selects and uses balances for measuring weight or mass* • Knows the approximate size of a pound • Knows the approximate size of a gram • Converts between milligrams and grams* • 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 • Solves problems involving measurement of time • Knows common referents (boiling or freezing point, room temperature)* • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Estimates the area of rectangles using square units • Estimates and finds volume of a figure using cubic units • Uses basic indirect methods to estimate measurements (grids for area of irregular figures)*
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Measures length with non-standard units • Measures length with customary measures to the half-inch mark • 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 • Interprets a calendar - some computation required	• Measures length with non-standard units • Uses balance scale to measure weight of an unknown object* • 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 • Reads Celsius thermometers to the nearest degree	• Measures length to the nearest centimeter* • Determines the perimeter of a figure where some sides are labeled • Solves simple problems comparing area and perimeter (customary units)* • Identifies situations where it is appropriate to calculate area

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Blank cells indicate data are limited or unavailable for this range or document version.

• Reads Fahrenheit thermometers to the nearest degree* • Determines the perimeter of a figure where all sides are labeled • Compares squares (larger, smaller)	• Determines the perimeter of a figure where all sides are labeled • Determines the perimeter of a figure where some sides are labeled	
New Vocabulary: clock, clockwise, cup, distance, estimation, flip, foot, fourth, gallon, grid, half past, how much time, kilometer, line of symmetry, liter, measurement, millimeter, noon, o'clock, pint, quarter past, quarter to, rectangular solid, rod, rotation, smallest, symmetry, tablespoon, teaspoon, ton, turn, unit, what time, yard	*New Vocabulary:* approximate, decade, diagonal, face, inside, intersect, kite, large, oval, parallel, plane, polygon, rectangular, rhombus, same shape, scale, square inch, straight, twist, vertical line	*New Vocabulary:* circumference, coordinate, coordinate point, cubic centimeter, cubic unit, decameter, decimeter, edge, fold, kilogram, larger, milligram, milliliter, mirror image, octagon, ordered pair, origin, parallel line, quadrilateral, rectangular box, regular polygon, trapezoid, vertex
New Signs and Symbols: ( ) ordered pair, : used with time, c cup, gal gallon, in. inch, m meter/metre, pt pint, qt quart, tsp teaspoon	*New Signs and Symbols:* °C degrees Celsius, " inches, kg kilogram, • multiplication symbol (dot)	*New Signs and Symbols:* ∠ angle, ° degrees, ' feet, ↔ line symbol, m measure of angle, mm millimeter/millimetre, right angle marker, □ variable

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 201 - 210

Skills and Concepts to Enhance 191 - 200	Skills and Concepts to Develop 201 - 210	Skills and Concepts to Introduce 211 - 220
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies lines* • Identifies parallel lines • Identifies angles* • Identifies points on a circle* • Identifies diagonals of a polygon • Identifies and names a polygon* • Identifies and names a pentagon* • 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* • Identifies position of shapes (e.g., inside, outside, between)* • Identifies figures that are the same size and shape (analysis)* • Identifies congruent figures • Explores maps and relates them to measurements of real distances, using the scale* • Identifies plane figures with line symmetry • Identifies the number of lines of symmetry in plane figures	• Identifies the intersection point of two lines* • Identifies intersecting lines • Identifies parallel lines • Identifies angles* • Identifies right angles* • Identifies and names a parallelogram* • Identifies and names a polygon* • Identifies and names a hexagon* • Identifies and names a octagon* • Classifies polygons by sides and angles • 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 • Classifies cylinders by their properties (e.g., base shape, lateral surface shape, vertices)* • Classifies plane figures by the number of lines of symmetry*	• Identifies rays* • Identifies perpendicular lines* • Describes relationships among points, lines, and planes, and identifies models in the environment* • Identifies right angles within adjacent angles* • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies the diameter of a circle* • Identifies the circumference of circle* • Identifies the number of degrees in a circle* • Identifies and names a quadrilateral* • Identifies altitudes of polygons (not triangles)* • Classifies polygons by type of angle* • Classifies polygons by number of sides* • Identifies corners (vertices) of cubes* • Identifies the net which makes a cube-like (open box) figure* • Identifies and names a rectangular prism* • Classifies triangular prisms by their properties (e.g., base shape, lateral surface shape, vertices)* • Predicts and verifies the effects of combining or subdividing basic shapes • Compares simple plane figures to solid figures (e.g., circle/sphere, square/cube, rectangle/rectangular solid)* • Identifies similar and congruent triangles* • Identifies congruent polygons and their corresponding sides and angles* • Defines "similarity"* • Recognizes similar figures in the real world* • Determines an appropriate scale for representing a distance on a map* • Uses similar figures to construct ratios and solve for a missing side*

* 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.

		• Classifies plane figures by the number of lines of symmetry*
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Identifies transformations of plane figures (reflections/flips)	• Defines transformations*	• Identifies geometric transformations (rotations)* • Identifies geometric transformations (translations)* • Identifies geometric transformations (reflections)*
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• Determines and names locations in the first quadrant on a labeled grid or coordinate system (e.g., map or graph)*	• 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)* • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system* • Locates the origin on a coordinate grid*	• Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system* • Locates the origin on a coordinate grid*
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Selects and uses the appropriate type and size of unit in customary system (length) • Selects and uses the appropriate type and size of unit in customary system (height)* • Knows the approximate size of a foot • Knows the approximate size of a mile* • Selects and uses the appropriate type and size of unit in customary system (weight)* • Knows the approximate size of an ounce* • Selects and uses the appropriate type and size of unit in customary system (capacity)* • Knows the approximate size of a pint* • Converts between cups and pints* • Converts between cups, pints, and quarts* • Identifies the correct time, given the words, and vice versa • Orders years* • Selects and uses the appropriate type and size of unit in customary system (time)* • Computes simple conversions among units of time (minutes, hours) • Computes simple conversions among units of time (hours, days)* • Estimates the area of rectangles using square units	• Selects and uses the appropriate type and size of unit in metric system (length) • Selects and uses the appropriate type and size of unit in metric system (height)* • Knows the approximate size of a yard • Knows the approximate size of a centimeter • Converts between inches and feet • Selects and uses balances for measuring weight or mass* • Knows the approximate size of a pound • Knows the approximate size of a gram • Converts between milligrams and grams* • 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 • Solves problems involving measurement of time • Knows common referents (boiling or freezing point, room temperature)* • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Estimates the area of rectangles using square units • Estimates and finds volume of a figure using cubic units • Uses basic indirect methods to estimate measurements	• Selects and uses the appropriate type and size of unit in metric system (length) • Selects and uses the appropriate type and size of unit in metric system (height)* • Knows the approximate size of a millimeter* • Knows the approximate size of a kilometer* • Converts between inches and feet • Converts between inches, feet, and yards • Converts between feet, yards, and miles* • Computes basic addition with units of length • Selects and uses the appropriate type and size of unit in metric system (mass)* • Knows the approximate size of an ounce* • Knows the approximate size of a gallon* • Converts between cups, pints, quarts, and gallons • Computes basic operations with units of time • Relates years, decades, centuries, and millenniums • Selects and uses protractors for measuring angles* • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Counts squares to determine surface area of a cube* • Estimates and finds volume of a figure using cubic units • Selects and uses the appropriate units depending on degree of accuracy required to solve problems*

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	(grids for area of irregular figures)*	
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Measures length with non-standard units • Uses balance scale to measure weight of an unknown object* • 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 • Reads Celsius thermometers to the nearest degree • Determines the perimeter of a figure where all sides are labeled • Determines the perimeter of a figure where some sides are labeled	• Measures length to the nearest centimeter* • Determines the perimeter of a figure where some sides are labeled • Solves simple problems comparing area and perimeter (customary units)* • Identifies situations where it is appropriate to calculate area	• Measures length to the nearest half inch* • Measures length to the nearest quarter of an inch • Measures length to the nearest eighth of an inch • Reads Celsius thermometers to 0.1 degrees* • Determines the perimeter of a figure using non-standard units* • Finds the perimeter of a polygon using a formula • Determines the process for calculating perimeter • Solves simple problems comparing area and perimeter (customary units)*
New Vocabulary: approximate, decade, diagonal, face, inside, intersect, kite, large, oval, parallel, plane, polygon, rectangular, rhombus, same shape, scale, square inch, straight, twist, vertical line	*New Vocabulary:* circumference, coordinate, coordinate point, cubic centimeter, cubic unit, decameter, decimeter, edge, fold, kilogram, larger, milligram, milliliter, mirror image, octagon, ordered pair, origin, parallel line, quadrilateral, rectangular box, regular polygon, trapezoid, vertex	*New Vocabulary:* acute angle, century, congruent angle, dilation, enlargement, geometric solid, micrometer, obtuse angle, perpendicular line, protractor, straight angle, tessellation, three-dimensional, transformation, translation, union
New Signs and Symbols: °C degrees Celsius, " inches, kg kilogram, • multiplication symbol (dot)	*New Signs and Symbols:* ∠ angle, ° degrees, ' feet, ↔ line symbol, m measure of angle, mm millimeter/millimetre, right angle marker, □ variable	*New Signs and Symbols:* + addition, angle marker (arc), ÷ division, fl oz fluid ounce, hr hour, l length, min minute, × multiplication, oz ounce, P perimeter, sec second, segment overbar, s side, – subtraction, w width, yd yard

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 211 - 220

Skills and Concepts to Enhance 201 - 210	Skills and Concepts to Develop 211 - 220	Skills and Concepts to Introduce 221 - 230
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies the intersection point of two lines* • Identifies intersecting lines • Identifies parallel lines • Identifies angles* • Identifies right angles* • Identifies and names a parallelogram* • Identifies and names a polygon* • Identifies and names a hexagon* • Identifies and names a octagon* • Classifies polygons by sides and angles • 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 • Classifies cylinders by their properties (e.g., base shape, lateral surface shape, vertices)* • Classifies plane figures by the number of lines of symmetry*	• Identifies rays* • Identifies perpendicular lines* • Describes relationships among points, lines, and planes, and identifies models in the environment* • Identifies right angles within adjacent angles* • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies the diameter of a circle* • Identifies the circumference of circle* • Identifies the number of degrees in a circle* • Identifies and names a quadrilateral* • Identifies altitudes of polygons (not triangles)* • Classifies polygons by type of angle* • Classifies polygons by number of sides* • Identifies corners (vertices) of cubes* • Identifies the net which makes a cube-like (open box) figure* • Identifies and names a rectangular prism* • Classifies triangular prisms by their properties (e.g., base shape, lateral surface shape, vertices)* • Predicts and verifies the effects of combining or subdividing basic shapes • Compares simple plane figures to solid figures (e.g., circle/sphere, square/cube, rectangle/rectangular solid)* • Identifies similar and congruent triangles* • Identifies congruent polygons and their corresponding sides and angles* • Defines "similarity"* • Recognizes similar figures in the real world* • Determines an appropriate scale for representing a distance on a map* • Uses similar figures to construct ratios and solve for a missing side*	• Identifies rays* • Determines which lines are perpendicular (analysis)* • Identifies properties of parallel and perpendicular lines • Identifies right angles within adjacent angles* • 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 trapezoid* • Identifies the radius of a circle • Identifies the diameter of a circle* • Identifies the circumference of circle* • Identifies the number of degrees in a circle* • Identifies and names a quadrilateral* • Compares polygons by properties • Identifies the number of diagonals of regular polygons* • Identifies properties of quadrilaterals* • Classifies polygons by type of angle* • Identifies the number of edges on rectangular prisms* • 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 • Predicts changes necessary to create symmetry in basic plane shapes*

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	• Classifies plane figures by the number of lines of symmetry*	
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Defines transformations*	• Identifies geometric transformations (rotations)* • Identifies geometric transformations (translations)* • Identifies geometric transformations (reflections)*	• Identifies geometric transformations (rotations)* • Identifies geometric transformations (translations)* • Identifies geometric transformations (reflections)*
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• 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)* • Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system* • Locates the origin on a coordinate grid*	• Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system* • Locates the origin on a coordinate grid*	• Determines coordinates of geometric figures in the first quadrant • Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)* • Graphs ordered pairs in all quadrants • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Selects and uses the appropriate type and size of unit in metric system (length) • Selects and uses the appropriate type and size of unit in metric system (height)* • Knows the approximate size of a yard • Knows the approximate size of a centimeter • Converts between inches and feet • Selects and uses balances for measuring weight or mass* • Knows the approximate size of a pound • Knows the approximate size of a gram • Converts between milligrams and grams* • 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 • Solves problems involving measurement of time • Knows common referents (boiling or freezing point, room temperature)* • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Estimates the area of rectangles using square units • Estimates and finds volume of a figure using cubic	• Selects and uses the appropriate type and size of unit in metric system (length) • Selects and uses the appropriate type and size of unit in metric system (height)* • Knows the approximate size of a millimeter* • Knows the approximate size of a kilometer* • Converts between inches and feet • Converts between inches, feet, and yards • Converts between feet, yards, and miles* • Computes basic addition with units of length • Selects and uses the appropriate type and size of unit in metric system (mass)* • Knows the approximate size of an ounce* • Knows the approximate size of a gallon* • Converts between cups, pints, quarts, and gallons • Computes basic operations with units of time • Relates years, decades, centuries, and millenniums • Selects and uses protractors for measuring angles* • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Counts squares to determine surface area of a cube* • Estimates and finds volume of a figure using cubic units • Selects and uses the appropriate units depending on degree of accuracy required to solve problems*	• Uses the appropriate unit of measure for length* • Knows the approximate size of a meter • Converts between inches, feet, and yards • Converts between feet, yards, and miles* • Computes basic addition with units of length • Computes basic subtraction and multiplication with units of length • Converts between millimeters, centimeters, meters, and kilometers • Converts between ounces and pounds • Converts between ounces, pounds, and tons* • Computes basic operations with units of weight/mass* • Converts between cups, pints, quarts, and gallons • Converts within the metric system • Computes basic operations with units of time • Relates years, decades, centuries, and millenniums • Computes 2-step conversions between units of time • Uses the appropriate unit of measure for area* • Uses the appropriate unit of measure for volume*

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units • Uses basic indirect methods to estimate measurements (grids for area of irregular figures)*		
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Measures length to the nearest centimeter* • Determines the perimeter of a figure where some sides are labeled • Solves simple problems comparing area and perimeter (customary units)* • Identifies situations where it is appropriate to calculate area	• Measures length to the nearest half inch* • Measures length to the nearest quarter of an inch • Measures length to the nearest eighth of an inch • Reads Celsius thermometers to 0.1 degrees* • Determines the perimeter of a figure using non-standard units* • Finds the perimeter of a polygon using a formula • Determines the process for calculating perimeter • Solves simple problems comparing area and perimeter (customary units)*	• Measures length to the nearest millimeter • Finds the perimeter using the formula with a variable* • Defines pi and knows common estimates (3.14 and 22/7)* • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units)* • Uses models to develop the relationship between the total number of square units contained in a rectangle and the length and width of the figure* • Calculates area and perimeter of a rectangle (customary units) • Calculates the volume of rectangular solids
New Vocabulary: circumference, coordinate, coordinate point, cubic centimeter, cubic unit, decameter, decimeter, edge, fold, kilogram, larger, milligram, milliliter, mirror image, octagon, ordered pair, origin, parallel line, quadrilateral, rectangular box, regular polygon, trapezoid, vertex	*New Vocabulary:* acute angle, century, congruent angle, dilation, enlargement, geometric solid, micrometer, obtuse angle, perpendicular line, protractor, straight angle, tessellation, three-dimensional, transformation, translation, union	*New Vocabulary:* arc, center, central angle, complementary angle, congruent side, cubic feet, cubic meter, cubic millimeter, cubic yard, equilateral, interior angle, isosceles triangle, long, midpoint, obtuse triangle, pi, right triangle, scalene triangle, sum of measures
New Signs and Symbols: ∠ angle, ° degrees, ' feet, ↔ line symbol, m measure of angle, mm millimeter/millimetre, right angle marker, □ variable	*New Signs and Symbols:* + addition, angle marker (arc), ÷ division, fl oz fluid ounce, hr hour, l length, min minute, × multiplication, oz ounce, P perimeter, sec second, segment overbar, s side, – subtraction, w width, yd yard	*New Signs and Symbols:* ( ) order of operations, dm decimeter/decimetre, h height, km kilometer/kilometre, lb pound, mL milliliter/millilitre, – negative number, parallel symbol, π pi, : ratio, × multiplication, = is equal to, Δ triangle, V volume

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 221 - 230

Skills and Concepts to Enhance 211 - 220	Skills and Concepts to Develop 221 - 230	Skills and Concepts to Introduce 231 - 240
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies rays* • Identifies perpendicular lines* • Describes relationships among points, lines, and planes, and identifies models in the environment* • Identifies right angles within adjacent angles* • Identifies properties of angles • Identifies acute angles • Identifies obtuse angles • Identifies the diameter of a circle* • Identifies the circumference of circle* • Identifies the number of degrees in a circle* • Identifies and names a quadrilateral* • Identifies altitudes of polygons (not triangles)* • Classifies polygons by type of angle* • Classifies polygons by number of sides* • Identifies corners (vertices) of cubes* • Identifies the net which makes a cube-like (open box) figure* • Identifies and names a rectangular prism* • Classifies triangular prisms by their properties (e.g., base shape, lateral surface shape, vertices)* • Predicts and verifies the effects of combining or subdividing basic shapes • Compares simple plane figures to solid figures (e.g., circle/sphere, square/cube, rectangle/rectangular solid)* • Identifies similar and congruent triangles* • Identifies congruent polygons and their corresponding sides and angles* • Defines "similarity"* • Recognizes similar figures in the real world* • Determines an appropriate scale for representing a distance on a map* • Uses similar figures to construct ratios and solve for a missing side*	• Identifies rays* • Determines which lines are perpendicular (analysis)* • Identifies properties of parallel and perpendicular lines • Identifies right angles within adjacent angles* • 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 trapezoid* • Identifies the radius of a circle • Identifies the diameter of a circle* • Identifies the circumference of circle* • Identifies the number of degrees in a circle* • Identifies and names a quadrilateral* • Compares polygons by properties • Identifies the number of diagonals of regular polygons* • Identifies properties of quadrilaterals* • Classifies polygons by type of angle* • Identifies the number of edges on rectangular prisms* • 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 • Predicts changes necessary to create symmetry in basic plane shapes*	• Determines which lines are perpendicular (analysis)* • Identifies and measures straight angles • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles* • Identifies parts of a right triangle (legs, hypotenuse, angles)* • Recognizes the interior angle relationships of triangles • Classifies isosceles triangles • Classifies scalene triangles* • Identifies properties of circles • Compares polygons by properties • Classifies square pyramids by their properties (e.g., base shape, lateral surface shape, vertices)* • Classifies rectangular pyramids by their properties (e.g., base shape, lateral surface shape, vertices)* • Identifies the components of the Pythagorean theorem* • Identifies properties of congruent triangles* • Solves problems involving properties of congruent triangles • Uses similarity to solve problems using scale drawings • 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* • Uses similar triangles to construct ratios and solve for a missing side

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• Classifies plane figures by the number of lines of symmetry*		
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Identifies geometric transformations (rotations)* • Identifies geometric transformations (translations)* • Identifies geometric transformations (reflections)*	• Identifies geometric transformations (rotations)* • Identifies geometric transformations (translations)* • Identifies geometric transformations (reflections)*	• Identifies geometric transformations (dilations)
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• Determines the distance between horizontal and vertical lines in the first quadrant of a rectangular coordinate system* • Locates the origin on a coordinate grid*	• Determines coordinates of geometric figures in the first quadrant • Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)* • Graphs ordered pairs in all quadrants • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*	• Graphs ordered pairs in all quadrants • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Selects and uses the appropriate type and size of unit in metric system (length) • Selects and uses the appropriate type and size of unit in metric system (height)* • Knows the approximate size of a millimeter* • Knows the approximate size of a kilometer* • Converts between inches and feet • Converts between inches, feet, and yards • Converts between feet, yards, and miles* • Computes basic addition with units of length • Selects and uses the appropriate type and size of unit in metric system (mass)* • Knows the approximate size of an ounce* • Knows the approximate size of a gallon* • Converts between cups, pints, quarts, and gallons • Computes basic operations with units of time • Relates years, decades, centuries, and millenniums • Selects and uses protractors for measuring angles* • Estimates the measure of acute, right, and obtuse angles using 45 and 90 degrees as referents • Counts squares to determine surface area of a cube* • Estimates and finds volume of a figure using cubic units • Selects and uses the appropriate units depending on degree of accuracy required to solve problems*	• Uses the appropriate unit of measure for length* • Knows the approximate size of a meter • Converts between inches, feet, and yards • Converts between feet, yards, and miles* • Computes basic addition with units of length • Computes basic subtraction and multiplication with units of length • Converts between millimeters, centimeters, meters, and kilometers • Converts between ounces and pounds • Converts between ounces, pounds, and tons* • Computes basic operations with units of weight/mass* • Converts between cups, pints, quarts, and gallons • Converts within the metric system • Computes basic operations with units of time • Relates years, decades, centuries, and millenniums • Computes 2-step conversions between units of time • Uses the appropriate unit of measure for area* • Uses the appropriate unit of measure for volume*	• Converts between feet, yards, and miles* • Computes basic subtraction and multiplication with units of length • Converts between millimeters, centimeters, meters, and kilometers • Converts between grams and kilograms* • Computes basic operations with units of capacity • Converts within the metric system • Uses the appropriate unit of measure for volume* • Uses basic indirect methods to estimate measurements*

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Measuring Geometric Objects	Measuring Geometric Objects	Measuring Geometric Objects
• Measures length to the nearest half inch* • Measures length to the nearest quarter of an inch • Measures length to the nearest eighth of an inch • Reads Celsius thermometers to 0.1 degrees* • Determines the perimeter of a figure using non-standard units* • Finds the perimeter of a polygon using a formula • Determines the process for calculating perimeter • Solves simple problems comparing area and perimeter (customary units)*	• Measures length to the nearest millimeter • Finds the perimeter using the formula with a variable* • Defines pi and knows common estimates (3.14 and 22/7)* • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units)* • Uses models to develop the relationship between the total number of square units contained in a rectangle and the length and width of the figure* • Calculates area and perimeter of a rectangle (customary units) • Calculates the volume of rectangular solids	• Measures length to the nearest millimeter • Identifies the formula for perimeter with a variable • Determines the circumference when given the diameter or radius (or vice versa) • Identifies the formula for circumference of a circle* • Knows the relationship between radius, diameter, and circumference • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units)* • Determines area, length, or width, given the formula with variables* • Describes the change in area of a rectangle when dimensions of an object are altered* • Identifies the formula for area of circle* • Understands the procedure for finding the area and surface area of figures • Calculates the volume of rectangular solids
New Vocabulary: acute angle, century, congruent angle, dilation, enlargement, geometric solid, micrometer, obtuse angle, perpendicular line, protractor, straight angle, tessellation, three-dimensional, transformation, translation, union	*New Vocabulary:* arc, center, central angle, complementary angle, congruent side, cubic feet, cubic meter, cubic millimeter, cubic yard, equilateral, interior angle, isosceles triangle, long, midpoint, obtuse triangle, pi, right triangle, scalene triangle, sum of measures	*New Vocabulary:* acute triangle, chord, corresponding side, equiangular triangle, minus, secant, square pyramid, tangent, tripled
New Signs and Symbols: + addition, angle marker (arc), ÷ division, fl oz fluid ounce, hr hour, l length, min minute, × multiplication, oz ounce, P perimeter, sec second, segment overbar, s side, − subtraction, w width, yd yard	*New Signs and Symbols:* ( ) order of operations, dm decimeter/decimetre, h height, km kilometer/kilometre, lb pound, mL milliliter/millilitre, − negative number, parallel symbol, π pi, : ratio, × multiplication, = is equal to, Δ triangle, V volume	*New Signs and Symbols:* A area, C circumference, congruent segment symbol, d diameter, ≅ is congruent to, r radius, π pi, t time

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 231 - 240

Skills and Concepts to Enhance 221 - 230	Skills and Concepts to Develop 231 - 240	Skills and Concepts to Introduce 241 - 250
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies rays* • Determines which lines are perpendicular (analysis)* • Identifies properties of parallel and perpendicular lines • Identifies right angles within adjacent angles* • 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 trapezoid* • Identifies the radius of a circle • Identifies the diameter of a circle* • Identifies the circumference of circle* • Identifies the number of degrees in a circle* • Identifies and names a quadrilateral* • Compares polygons by properties • Identifies the number of diagonals of regular polygons* • Identifies properties of quadrilaterals* • Classifies polygons by type of angle* • Identifies the number of edges on rectangular prisms* • 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 • Predicts changes necessary to create symmetry in basic plane shapes*	• Determines which lines are perpendicular (analysis)* • Identifies and measures straight angles • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles* • Identifies parts of a right triangle (legs, hypotenuse, angles)* • Recognizes the interior angle relationships of triangles • Classifies isosceles triangles • Classifies scalene triangles* • Identifies properties of circles • Compares polygons by properties • Classifies square pyramids by their properties (e.g., base shape, lateral surface shape, vertices)* • Classifies rectangular pyramids by their properties (e.g., base shape, lateral surface shape, vertices)* • Identifies the components of the Pythagorean theorem* • Identifies properties of congruent triangles* • Solves problems involving properties of congruent triangles • Uses similarity to solve problems using scale drawings • 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* • Uses similar triangles to construct ratios and solve for a missing side	• Identifies properties of congruent angles* • Identifies and determines missing angle measures for complementary angles • Uses properties of angles and figures to solve algebraic problems* • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles* • Defines angles using properties (e.g., acute, obtuse, right, straight, reflex)* • Identifies corresponding and alternate exterior/interior angles • Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side* • Recognizes the exterior angle relationships of triangles* • Classifies right triangles by defining properties* • Identifies and names a rhombus* • Identifies symmetry of a sphere* • Uses the Pythagorean theorem to solve problems • Constructs congruent figures* • Identifies properties of similar figures*
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Identifies geometric transformations (rotations)* • Identifies geometric transformations (translations)* • Identifies geometric transformations (reflections)*	• Identifies geometric transformations (dilations)	• Determines the new coordinates of a transformed geometric figure
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• Determines coordinates of geometric figures in the first quadrant	• Graphs ordered pairs in all quadrants • Computes and interprets the midpoint, given a set of	• Determines the distance between two points* • Determines the midpoint of a line on a coordinate

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• Determines the distance between points, following grid lines, in the first quadrant on a coordinate graph (as in city blocks)* • Graphs ordered pairs in all quadrants • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*	ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*	grid* • Determines the figure when plotting ordered pairs • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Uses the appropriate unit of measure for length* • Knows the approximate size of a meter • Converts between inches, feet, and yards • Converts between feet, yards, and miles* • Computes basic addition with units of length • Computes basic subtraction and multiplication with units of length • Converts between millimeters, centimeters, meters, and kilometers • Converts between ounces and pounds • Converts between ounces, pounds, and tons* • Computes basic operations with units of weight/mass* • Converts between cups, pints, quarts, and gallons • Converts within the metric system • Computes basic operations with units of time • Relates years, decades, centuries, and millenniums • Computes 2-step conversions between units of time • Uses the appropriate unit of measure for area* • Uses the appropriate unit of measure for volume*	• Converts between feet, yards, and miles* • Computes basic subtraction and multiplication with units of length • Converts between millimeters, centimeters, meters, and kilometers • Converts between grams and kilograms* • Computes basic operations with units of capacity • Converts within the metric system • Uses the appropriate unit of measure for volume* • Uses basic indirect methods to estimate measurements*	• Uses dimensional analysis for unit conversions (time) • Uses dimensional analysis for unit conversions (area) • Uses significant digits appropriately as they relate to precision* • Uses an indirect method to measure the height of an inaccessible object*
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Measures length to the nearest millimeter • Finds the perimeter using the formula with a variable* • Defines pi and knows common estimates (3.14 and 22/7)* • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units)* • Uses models to develop the relationship between the total number of square units contained in a rectangle and the length and width of the figure* • Calculates area and perimeter of a rectangle (customary units) • Calculates the volume of rectangular solids	• Measures length to the nearest millimeter • Identifies the formula for perimeter with a variable • Determines the circumference when given the diameter or radius (or vice versa) • Identifies the formula for circumference of a circle* • Knows the relationship between radius, diameter, and circumference • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units)* • Determines area, length, or width, given the formula with variables* • Describes the change in area of a rectangle when	• Determines the perimeter of a figure when plotting ordered pairs* • Determines the circumference when given the diameter or radius (or vice versa) • Describes the change in area of a rectangle when dimensions of an object are altered* • Determines the surface area of rectangular solids • Determines the surface area of a cylinder, given a formula (customary units)*

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	dimensions of an object are altered* • Identifies the formula for area of circle* • Understands the procedure for finding the area and surface area of figures • Calculates the volume of rectangular solids	
New Vocabulary: arc, center, central angle, complementary angle, congruent side, cubic feet, cubic meter, cubic millimeter, cubic yard, equilateral, interior angle, isosceles triangle, long, midpoint, obtuse triangle, pi, right triangle, scalene triangle, sum of measures	*New Vocabulary:* acute triangle, chord, corresponding side, equiangular triangle, minus, secant, square pyramid, tangent, tripled	*New Vocabulary:* adjacent angle, congruent triangle, construction, incline, infinite, Pythagorean theorem, square yard, transversal, x-axis, y-axis
New Signs and Symbols: ( ) order of operations, dm decimeter/decimetre, h height, km kilometer/kilometre, lb pound, mL milliliter/millilitre, − negative number, parallel symbol, π pi, : ratio, × multiplication, = is equal to, Δ triangle, V volume	*New Signs and Symbols:* A area, C circumference, congruent segment symbol, d diameter, ≅ is congruent to, r radius, π pi, t time	*New Signs and Symbols:* $ dollar sign, < less than, mph miles per hour, / per, → ray symbol, s second (SI metric), sq in. square inch, sq square, square root symbol

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 241 - 250

Skills and Concepts to Enhance 231 - 240	Skills and Concepts to Develop 241 - 250	Skills and Concepts to Introduce 251 - 260
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Determines which lines are perpendicular (analysis)* • Identifies and measures straight angles • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles* • Identifies parts of a right triangle (legs, hypotenuse, angles)* • Recognizes the interior angle relationships of triangles • Classifies isosceles triangles • Classifies scalene triangles* • Identifies properties of circles • Compares polygons by properties • Classifies square pyramids by their properties (e.g., base shape, lateral surface shape, vertices)* • Classifies rectangular pyramids by their properties (e.g., base shape, lateral surface shape, vertices)* • Identifies the components of the Pythagorean theorem* • Identifies properties of congruent triangles* • Solves problems involving properties of congruent triangles • Uses similarity to solve problems using scale drawings • 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* • Uses similar triangles to construct ratios and solve for a missing side	• Identifies properties of congruent angles* • Identifies and determines missing angle measures for complementary angles • Uses properties of angles and figures to solve algebraic problems* • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles* • Defines angles using properties (e.g., acute, obtuse, right, straight, reflex)* • Identifies corresponding and alternate exterior/interior angles • Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side* • Recognizes the exterior angle relationships of triangles* • Classifies right triangles by defining properties* • Identifies and names a rhombus* • Identifies symmetry of a sphere* • Uses the Pythagorean theorem to solve problems • Constructs congruent figures* • Identifies properties of similar figures*	• Uses reasoning to verify properties of parallel and perpendicular lines • Defines the properties or relationships between planes, including parallel, perpendicular, and intersecting planes and their angles of incidence* • Identifies properties of congruent angles* • Uses properties of angles and figures to solve algebraic problems* • Identifies corresponding and alternate exterior/interior angles • 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* • Recognizes and uses medians in triangles* • Recognizes the exterior angle relationships of triangles* • Classifies right triangles by defining properties* • Solves problems involving properties of triangles • Identifies and names a rhombus* • Uses sums of interior/exterior angles to identify polygons • Uses number of sides to find angle measures of polygons • Classifies polygons by properties • Uses the Pythagorean theorem to solve problems • Verifies congruency of triangles using ASA, SAS, SSS, or AAS • Determines symmetry with respect to a point or line of a figure under transformation* • Solves problems involving similar polygons (not triangles) • Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem)

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		• Uses picture representations to identify corresponding parts of symmetric plane figures* • Uses picture representations to identify symmetry of plane figures with respect to a point or line
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Identifies geometric transformations (dilations)	• Determines the new coordinates of a transformed geometric figure	• Determines whether a given pattern or polygon will tessellate*
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• Graphs ordered pairs in all quadrants • Computes and interprets the midpoint, given a set of ordered pairs (horizontal and vertical lines)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*	• Determines the distance between two points* • 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)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*	• 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
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Converts between feet, yards, and miles* • Computes basic subtraction and multiplication with units of length • Converts between millimeters, centimeters, meters, and kilometers • Converts between grams and kilograms* • Computes basic operations with units of capacity • Converts within the metric system • Uses the appropriate unit of measure for volume* • Uses basic indirect methods to estimate measurements*	• Uses dimensional analysis for unit conversions (time) • Uses dimensional analysis for unit conversions (area) • Uses significant digits appropriately as they relate to precision* • Uses an indirect method to measure the height of an inaccessible object*	• Uses dimensional analysis for unit conversions (time) • Uses fractional units appropriately as they relate to precision*
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Measures length to the nearest millimeter • Identifies the formula for perimeter with a variable • Determines the circumference when given the diameter or radius (or vice versa) • Identifies the formula for circumference of a circle* • Knows the relationship between radius, diameter, and circumference • Calculates the area of a rectangle, given labeled sides (customary units) • Determines the length or width of a rectangle, given the area (metric units)* • Determines area, length, or width, given the formula with variables* • Describes the change in area of a rectangle when	• Determines the perimeter of a figure when plotting ordered pairs* • Determines the circumference when given the diameter or radius (or vice versa) • Describes the change in area of a rectangle when dimensions of an object are altered* • Determines the surface area of rectangular solids • Determines the surface area of a cylinder, given a formula (customary units)*	• Determines the area of a figure when plotting ordered pairs without a grid* • Determines the length of the side of a square, given the area* • Solves problems comparing area to perimeter (analysis) • Determines the volume of a cylinder

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dimensions of an object are altered* • Identifies the formula for area of circle* • Understands the procedure for finding the area and surface area of figures • Calculates the volume of rectangular solids		
New Vocabulary: acute triangle, chord, corresponding side, equiangular triangle, minus, secant, square pyramid, tangent, tripled	*New Vocabulary:* adjacent angle, congruent triangle, construction, incline, infinite, Pythagorean theorem, square yard, transversal, x-axis, y-axis	*New Vocabulary:* collinear, cross-section area, exterior angle, line symmetry, point symmetry, regular hexagon, regular pentagon, right cylinder, rotational symmetry
New Signs and Symbols: A area, C circumference, congruent segment symbol, d diameter, ≅ is congruent to, r radius, π pi, t time	*New Signs and Symbols:* $ dollar sign, < less than, mph miles per hour, / per, → ray symbol, s second (SI metric), sq in. square inch, sq square, square root symbol	*New Signs and Symbols:* AAA angle angle angle, AAS angle angle side, ASA angle side angle, parallel line arrow markers, SAS side angle side, ~ similar to, SSA side side angle, SSS side side side, ° degrees

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 251 - 260

Skills and Concepts to Enhance 241 - 250	Skills and Concepts to Develop 251 - 260	Skills and Concepts to Introduce 261 - 270
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Identifies properties of congruent angles* • Identifies and determines missing angle measures for complementary angles • Uses properties of angles and figures to solve algebraic problems* • Identifies and determines a missing angle measure in corresponding, vertical, and alternate exterior/interior angles* • Defines angles using properties (e.g., acute, obtuse, right, straight, reflex)* • Identifies corresponding and alternate exterior/interior angles • Recognizes that the sum of the measures of two sides of a triangle must be greater than the measure of the third side* • Recognizes the exterior angle relationships of triangles* • Classifies right triangles by defining properties* • Identifies and names a rhombus* • Identifies symmetry of a sphere* • Uses the Pythagorean theorem to solve problems • Constructs congruent figures* • Identifies properties of similar figures*	• Uses reasoning to verify properties of parallel and perpendicular lines • Defines the properties or relationships between planes, including parallel, perpendicular, and intersecting planes and their angles of incidence* • Identifies properties of congruent angles* • Uses properties of angles and figures to solve algebraic problems* • Identifies corresponding and alternate exterior/interior angles • 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* • Recognizes and uses medians in triangles* • Recognizes the exterior angle relationships of triangles* • Classifies right triangles by defining properties* • Solves problems involving properties of triangles • Identifies and names a rhombus* • Uses sums of interior/exterior angles to identify polygons • Uses number of sides to find angle measures of polygons • Classifies polygons by properties • Uses the Pythagorean theorem to solve problems • Verifies congruency of triangles using ASA, SAS, SSS, or AAS • Determines symmetry with respect to a point or line of a figure under transformation* • Solves problems involving similar polygons (not triangles) • Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem)	• Uses properties of angles to solve mathematical problems* • Identifies the number of diagonals of regular polygons using the formula* • Uses the properties of 30-60-90 triangles to solve problems*

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	• Uses picture representations to identify corresponding parts of symmetric plane figures* • Uses picture representations to identify symmetry of plane figures with respect to a point or line	
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Determines the new coordinates of a transformed geometric figure	• Determines whether a given pattern or polygon will tessellate*	
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• Determines the distance between two points* • 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)* • Computes and interprets distance, given a set of ordered pairs (horizontal and vertical lines)*	• 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	
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Uses dimensional analysis for unit conversions (time) • Uses dimensional analysis for unit conversions (area) • Uses significant digits appropriately as they relate to precision* • Uses an indirect method to measure the height of an inaccessible object*	• Uses dimensional analysis for unit conversions (time) • Uses fractional units appropriately as they relate to precision*	
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Determines the perimeter of a figure when plotting ordered pairs* • Determines the circumference when given the diameter or radius (or vice versa) • Describes the change in area of a rectangle when dimensions of an object are altered* • Determines the surface area of rectangular solids • Determines the surface area of a cylinder, given a formula (customary units)*	• Determines the area of a figure when plotting ordered pairs without a grid* • Determines the length of the side of a square, given the area* • Solves problems comparing area to perimeter (analysis) • Determines the volume of a cylinder	
New Vocabulary: adjacent angle, congruent triangle, construction, incline, infinite, Pythagorean theorem, square yard, transversal, x-axis, y-axis	*New Vocabulary:* collinear, cross-section area, exterior angle, line symmetry, point symmetry, regular hexagon, regular pentagon, right cylinder, rotational symmetry	*New Vocabulary:* decagon
New Signs and Symbols: $ dollar sign, < less than, mph miles per hour, / per, → ray symbol, s second (SI metric), sq in. square inch, sq square, square root symbol	*New Signs and Symbols:* AAA angle angle angle, AAS angle angle side, ASA angle side angle, parallel line arrow markers, SAS side angle side, ~ similar to, SSA side side angle, SSS side side side, ° degrees	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: 261 - 270

Skills and Concepts to Enhance 251 - 260	Skills and Concepts to Develop 261 - 270	Skills and Concepts to Introduce Above 270
Geometric Properties	**Geometric Properties**	**Geometric Properties**
• Uses reasoning to verify properties of parallel and perpendicular lines • Defines the properties or relationships between planes, including parallel, perpendicular, and intersecting planes and their angles of incidence* • Identifies properties of congruent angles* • Uses properties of angles and figures to solve algebraic problems* • Identifies corresponding and alternate exterior/interior angles • 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* • Recognizes and uses medians in triangles* • Recognizes the exterior angle relationships of triangles* • Classifies right triangles by defining properties* • Solves problems involving properties of triangles • Identifies and names a rhombus* • Uses sums of interior/exterior angles to identify polygons • Uses number of sides to find angle measures of polygons • Classifies polygons by properties • Uses the Pythagorean theorem to solve problems • Verifies congruency of triangles using ASA, SAS, SSS, or AAS • Determines symmetry with respect to a point or line of a figure under transformation* • Solves problems involving similar polygons (not triangles) • Solves problems involving properties of similar triangles (e.g., using geometric mean, Triangle Proportionality Theorem)	• Uses properties of angles to solve mathematical problems* • Identifies the number of diagonals of regular polygons using the formula* • Uses the properties of 30-60-90 triangles to solve problems*	• Identifies the number of diagonals of regular polygons using the formula*

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• Uses picture representations to identify corresponding parts of symmetric plane figures* • Uses picture representations to identify symmetry of plane figures with respect to a point or line		
Transforming Shapes	**Transforming Shapes**	**Transforming Shapes**
• Determines whether a given pattern or polygon will tessellate*		
Coordinate Geometry	**Coordinate Geometry**	**Coordinate Geometry**
• 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		
Units of Measurement	**Units of Measurement**	**Units of Measurement**
• Uses dimensional analysis for unit conversions (time) • Uses fractional units appropriately as they relate to precision*		
Measuring Geometric Objects	**Measuring Geometric Objects**	**Measuring Geometric Objects**
• Determines the area of a figure when plotting ordered pairs without a grid* • Determines the length of the side of a square, given the area* • Solves problems comparing area to perimeter (analysis) • Determines the volume of a cylinder		
New Vocabulary: collinear, cross-section area, exterior angle, line symmetry, point symmetry, regular hexagon, regular pentagon, right cylinder, rotational symmetry	*New Vocabulary:* decagon	*New Vocabulary:* none
New Signs and Symbols: AAA angle angle angle, AAS angle angle side, ASA angle side angle, parallel line arrow markers, SAS side angle side, ~ similar to, SSA side side angle, SSS side side side, ° degrees	*New Signs and Symbols:* none	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Geometry and Measurement
RIT Score Range: Above 270

Skills and Concepts to Enhance 261 - 270	Skills and Concepts to Develop Above 270
Geometric Properties	**Geometric Properties**
• Uses properties of angles to solve mathematical problems* • Identifies the number of diagonals of regular polygons using the formula* • Uses the properties of 30-60-90 triangles to solve problems*	• Identifies the number of diagonals of regular polygons using the formula*
Transforming Shapes	**Transforming Shapes**
Coordinate Geometry	**Coordinate Geometry**
Units of Measurement	**Units of Measurement**
Measuring Geometric Objects	**Measuring Geometric Objects**
New Vocabulary: decagon	*New Vocabulary:* none
New Signs and Symbols: none	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: Below 161

Skills and Concepts to Develop Below 161	Skills and Concepts to Introduce 161 - 170
Patterns	**Patterns**
• Applies the rule to determine which number does not belong - growing pattern: arithmetic*	• Extends repeating patterns - geometric shapes • Completes a growing arithmetic pattern by naming missing members • Applies the rule to determine which number does not belong - growing pattern: arithmetic*
Functions and Relationships	**Functions and Relationships**
Modeling and Procedures	**Modeling and Procedures**
	• Solves basic-facts open sentences - addition and subtraction
New Vocabulary: none	*New Vocabulary:* addend
New Signs and Symbols: none	*New Signs and Symbols:* + addition, = is equal to, – subtraction, □ variable

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 161 - 170

Skills and Concepts to Enhance Below 161	Skills and Concepts to Develop 161 - 170	Skills and Concepts to Introduce 171 - 180
Patterns	**Patterns**	**Patterns**
• Applies the rule to determine which number does not belong - growing pattern: arithmetic*	• Extends repeating patterns - geometric shapes • Completes a growing arithmetic pattern by naming missing members • Applies the rule to determine which number does not belong - growing pattern: arithmetic*	• Extends repeating patterns - geometric shapes • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern by naming missing members
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
	• Solves basic-facts open sentences - addition and subtraction	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable*
New Vocabulary: none	*New Vocabulary:* addend	*New Vocabulary:* multiply, rate, subtract, whole number
New Signs and Symbols: none	*New Signs and Symbols:* + addition, = is equal to, – subtraction, □ variable	*New Signs and Symbols:* $ dollar sign

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 171 - 180

Skills and Concepts to Enhance 161 - 170	Skills and Concepts to Develop 171 - 180	Skills and Concepts to Introduce 181 - 190
Patterns	**Patterns**	**Patterns**
• Extends repeating patterns - geometric shapes • Completes a growing arithmetic pattern by naming missing members • Applies the rule to determine which number does not belong - growing pattern: arithmetic*	• Extends repeating patterns - geometric shapes • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern by naming missing members	• Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern using models by identifying the missing members* • Completes arithmetic growth patterns in number tables by identifying the missing elements • Extends a decreasing arithmetic patterns* • Applies the rule to determine which set of letters is not like the other sets - other patterns*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Solves basic-facts open sentences - addition and subtraction	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable*	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • 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)
New Vocabulary: addend	*New Vocabulary:* multiply, rate, subtract, whole number	*New Vocabulary:* none
New Signs and Symbols: + addition, = is equal to, – subtraction, □ variable	*New Signs and Symbols:* $ dollar sign	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 181 - 190

Skills and Concepts to Enhance 171 - 180	Skills and Concepts to Develop 181 - 190	Skills and Concepts to Introduce 191 - 200
Patterns	**Patterns**	**Patterns**
• Extends repeating patterns - geometric shapes • Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern by naming missing members	• Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern using models by identifying the missing members* • Completes arithmetic growth patterns in number tables by identifying the missing elements • Extends a decreasing arithmetic patterns* • Applies the rule to determine which set of letters is not like the other sets - other patterns*	• Extends a growing arithmetic pattern, defined by objects or diagrams* • Completes a growing arithmetic pattern using models by identifying the missing members* • Extends a decreasing arithmetic patterns* • Extends patterns formed by letters*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • Solves basic-facts open sentences - addition and subtraction • Solves linear equations with basic facts - 1-step addition using a letter for the variable*	• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • 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* • Determines the operation needed to solve a real-world problem • Translates from a diagram to an expression or equation* • Translates a 1-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • 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*
New Vocabulary: multiply, rate, subtract, whole number	*New Vocabulary:* none	*New Vocabulary:* operation, rename

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New Signs and Symbols: $ dollar sign	*New Signs and Symbols:* none	*New Signs and Symbols:* ¢ cent sign, ÷ division, > greater than, < less than, × multiplication

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 191 - 200

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
Patterns	**Patterns**	**Patterns**
• Extends a growing arithmetic pattern, defined by numbers • Completes a growing arithmetic pattern using models by identifying the missing members* • Completes arithmetic growth patterns in number tables by identifying the missing elements • Extends a decreasing arithmetic patterns* • Applies the rule to determine which set of letters is not like the other sets - other patterns*	• Extends a growing arithmetic pattern, defined by objects or diagrams* • Completes a growing arithmetic pattern using models by identifying the missing members* • Extends a decreasing arithmetic patterns* • Extends patterns formed by letters*	• Extends a growing arithmetic pattern, defined by objects or diagrams* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Extends a pattern formed by rotating a geometric figure
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
		• Uses mapping diagrams to represent functions*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Determines the operation needed from a simple problem* • Writes a number sentence for a simple problem solving situation* • 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* • Determines the operation needed to solve a real-world problem • Translates from a diagram to an expression or equation* • Translates a 1-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • 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*	• Writes a number sentence for a simple problem solving situation (analysis) • Determines the operation needed to solve a real-world problem • Translates a number sentence to a real-world situation* • Translates a 1-step problem to a symbolic expression or equation • Translates a 2-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers over 100) • Solves simple open sentences with missing factors (numbers 100 and under)*

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		• Solves 2-step open sentences with missing addends* • Solves open sentences with basic-facts calculations on both sides of the sentence
New Vocabulary: none	*New Vocabulary:* operation, rename	*New Vocabulary:* mathematical statement, minimum, ordered pair
New Signs and Symbols: none	*New Signs and Symbols:* ¢ cent sign, ÷ division, > greater than, < less than, × multiplication	*New Signs and Symbols:* ( ) order of operations, ( ) ordered pair, − negative number, + positive number, = is equal to

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 201 - 210

Skills and Concepts to Enhance 191 - 200	Skills and Concepts to Develop 201 - 210	Skills and Concepts to Introduce 211 - 220
Patterns	**Patterns**	**Patterns**
• Extends a growing arithmetic pattern, defined by objects or diagrams* • Completes a growing arithmetic pattern using models by identifying the missing members* • Extends a decreasing arithmetic patterns* • Extends patterns formed by letters*	• Extends a growing arithmetic pattern, defined by objects or diagrams* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Extends a pattern formed by rotating a geometric figure	• Extends a repeating pattern of geometric shapes in a grid* • Extends a growing geometric pattern - using numbers* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends, or completes, growing patterns defined by equations or number facts • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Identifies rules and applies them to new patterns
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
	• Uses mapping diagrams to represent functions*	• Determines the rule and completes a simple function machine output* • Uses mapping diagrams to represent functions*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Determines the operation needed from a simple problem* • Determines the operation needed to solve a real-world problem • Translates from a diagram to an expression or equation* • Translates a 1-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Solves basic facts addition and subtraction open sentences using diagrams and models (e.g., using balances)* • Solves complex open linear sentences using diagrams and models (e.g., using balances)* • Solves 1-step open sentences with missing addends (numbers 100 and under) • Solves 1-step open sentences with missing addends (numbers over 100)	• Writes a number sentence for a simple problem solving situation (analysis) • Determines the operation needed to solve a real-world problem • Translates a number sentence to a real-world situation* • Translates a 1-step problem to a symbolic expression or equation • Translates a 2-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation* • Solves complex open linear sentences using diagrams and models (e.g., using balances)*	• Translates a 2-step problem to a symbolic expression or equation • Determines the operation needed from a complex problem* • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • 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

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• Solves simple open sentences with missing factors (numbers 100 and under)* • Solves 2-step open sentences with missing addends*	• 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	
New Vocabulary: operation, rename	*New Vocabulary:* mathematical statement, minimum, ordered pair	*New Vocabulary:* none
New Signs and Symbols: ¢ cent sign, ÷ division, > greater than, < less than, × multiplication	*New Signs and Symbols:* ( ) order of operations, ( ) ordered pair, − negative number, + positive number, = is equal to	*New Signs and Symbols:* ? next in sequence

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 211 - 220

Skills and Concepts to Enhance 201 - 210	Skills and Concepts to Develop 211 - 220	Skills and Concepts to Introduce 221 - 230
Patterns	**Patterns**	**Patterns**
• Extends a growing arithmetic pattern, defined by objects or diagrams* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Extends a pattern formed by rotating a geometric figure	• Extends a repeating pattern of geometric shapes in a grid* • Extends a growing geometric pattern - using numbers* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends, or completes, growing patterns defined by equations or number facts • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Identifies rules and applies them to new patterns	• 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)*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
• Uses mapping diagrams to represent functions*	• Determines the rule and completes a simple function machine output* • Uses mapping diagrams to represent functions*	• Uses mapping diagrams to represent functions* • Completes a function table according to a rule* • Investigates and describes functional relationships of geometric figures (e.g., area is a function of the radius)*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Writes a number sentence for a simple problem solving situation (analysis) • Determines the operation needed to solve a real-world problem • Translates a number sentence to a real-world situation* • Translates a 1-step problem to a symbolic expression or equation • Translates a 2-step problem to a symbolic expression or equation • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • Uses simple linear equations to represent problem situations • Describes a realistic situation using information given in a linear equation*	• Translates a 2-step problem to a symbolic expression or equation • Determines the operation needed from a complex problem* • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • 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	• Translates a problem to a symbolic expression or equation (analysis)* • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation* • 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) • 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

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• Solves complex open linear sentences using diagrams and models (e.g., using balances)* • 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		correct order of operations)* • 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 2-step linear equations* • Solves linear equations with decimals* • Solves linear equations with integers • Solves linear equations using substitution • 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* • Solves open sentences with integers* • Solves simple one-step inequality open sentences* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*
New Vocabulary: mathematical statement, minimum, ordered pair	*New Vocabulary:* none	*New Vocabulary:* algebra, algebraic equation, associative, distributive, reflexive, substitution, transitive
New Signs and Symbols: ( ) order of operations, ( ) ordered pair, − negative number, + positive number, = is equal to	*New Signs and Symbols:* ? next in sequence	*New Signs and Symbols:* ( ) parenthesis around an integer, ∩ intersection, ∅ null or empty set, + positive number, repeating decimal overbar, Δ triangle

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 221 - 230

Skills and Concepts to Enhance 211 - 220	Skills and Concepts to Develop 221 - 230	Skills and Concepts to Introduce 231 - 240
Patterns	**Patterns**	**Patterns**
• Extends a repeating pattern of geometric shapes in a grid* • Extends a growing geometric pattern - using numbers* • Extends a pattern formed by two arithmetic growing patterns - odd and even terms (such as 1,5,4,8,7,...) • Extends, or completes, growing patterns defined by equations or number facts • Extends a growing pattern of numbers - explicit quadratic rule - recursive rule is to add x more each time (such as 1,2,4,7,...)* • Identifies rules and applies them to new patterns	• 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)*	• Recognizes and extends arithmetic sequences (predicts nth term) • Recognizes and extends the Fibonacci sequence*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
• Determines the rule and completes a simple function machine output* • Uses mapping diagrams to represent functions*	• Uses mapping diagrams to represent functions* • Completes a function table according to a rule* • Investigates and describes functional relationships of geometric figures (e.g., area is a function of the radius)*	• Represents real-world functions using an equation • Uses tables to determine function equations • Completes a function table according to a rule* • Models real life functions using function notation* • Identifies the graph type, given equations of linear and nonlinear functions*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Translates a 2-step problem to a symbolic expression or equation • Determines the operation needed from a complex problem* • Uses algebraic reasoning to solve problems involving equality relationships* • Uses basic operations on algebraic expressions (uses correct order of operations)* • 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	• Translates a problem to a symbolic expression or equation (analysis)* • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation* • 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) • 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	• Translates a problem to a symbolic expression or equation (analysis)* • Uses expressions to represent situations that involve variable quantities with exponents* • Uses basic operations on algebraic expressions (substituting for unknowns) • Uses basic operations on algebraic expressions (substituting for unknown exponents) • 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., $(x + 3)/2 = x/2 + 3/2$)*

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• Solves 1-step linear equations	• Uses basic operations on algebraic expressions (uses correct order of operations)* • 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 2-step linear equations* • Solves linear equations with decimals* • Solves linear equations with integers • Solves linear equations using substitution • 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* • Solves open sentences with integers* • Solves simple one-step inequality open sentences* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*	• Represents relationships of quantities in the form of an expression • 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 decimals* • Solves linear equations with integers • Solves linear equations with fractions • Solves open sentences with integers* • Solves linear equations using rational numbers* • Writes the equation of a horizontal or vertical line when given the graph of the line* • Determines the graph of a horizontal or vertical line when given the equation* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Expresses a simple linear inequality from a contextual situation • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves simple linear inequalities using graphs*
New Vocabulary: none	*New Vocabulary:* algebra, algebraic equation, associative, distributive, reflexive, substitution, transitive	*New Vocabulary:* algebraic sentence, arithmetic progression, equation of a line, is less than, linear graph, mathematical sentence, skew
New Signs and Symbols: ? next in sequence	*New Signs and Symbols:* ( ) parenthesis around an integer, ∩ intersection, ∅ null or empty set, + positive number, repeating decimal overbar, Δ triangle	*New Signs and Symbols:* f(x) the value of the function f at x, ≥ greater than or equal to, ≤ less than or equal to, • multiplication symbol (dot), – subtraction

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 231 - 240

Skills and Concepts to Enhance 221 - 230	Skills and Concepts to Develop 231 - 240	Skills and Concepts to Introduce 241 - 250
Patterns	**Patterns**	**Patterns**
• 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)*	• Recognizes and extends arithmetic sequences (predicts nth term) • Recognizes and extends the Fibonacci sequence*	• Represents growing arithmetic patterns using algebraic expressions or equations* • Uses an algebraic expression to represent a triangular number pattern*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
• Uses mapping diagrams to represent functions* • Completes a function table according to a rule* • Investigates and describes functional relationships of geometric figures (e.g., area is a function of the radius)*	• Represents real-world functions using an equation • Uses tables to determine function equations • Completes a function table according to a rule* • Models real life functions using function notation* • Identifies the graph type, given equations of linear and nonlinear functions*	• Uses tables to determine function equations • Completes a function table according to a rule (rational numbers)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Uses ordered pairs to graph a parabola* • Determines the x- and/or y-intercept of an equation of a function* • Performs operations on functions • Determines the domain and range of a function*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Translates a problem to a symbolic expression or equation (analysis)* • Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation* • 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) • 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	• Translates a problem to a symbolic expression or equation (analysis)* • Uses expressions to represent situations that involve variable quantities with exponents* • Uses basic operations on algebraic expressions (substituting for unknowns) • Uses basic operations on algebraic expressions (substituting for unknown exponents) • 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., $(x + 3)/2 = x/2 + 3/2$)*	• Uses expressions to represent situations that involve variable quantities with exponents* • Determines the expression for the area of a figure represented by algebra tiles • Evaluates expressions by substituting with rational numbers • Evaluates absolute-value algebraic expressions using substitution strategies* • Simplifies polynomial expressions • Multiplies binomials • Factors trinomials in the form $x^2 + bx + c$ • Factors polynomials using difference of squares* • Uses linear equations to represent situations involving variable quantities • Solves 2-step open sentences with missing factors (variables on both sides of the sentence)*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Uses basic operations on algebraic expressions (uses correct order of operations)* • 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 2-step linear equations* • Solves linear equations with decimals* • Solves linear equations with integers • Solves linear equations using substitution • 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* • Solves open sentences with integers* • Solves simple one-step inequality open sentences* • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)*	• Represents relationships of quantities in the form of an expression • 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 decimals* • Solves linear equations with integers • Solves linear equations with fractions • Solves open sentences with integers* • Solves linear equations using rational numbers* • Writes the equation of a horizontal or vertical line when given the graph of the line* • Determines the graph of a horizontal or vertical line when given the equation* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Expresses a simple linear inequality from a contextual situation • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves simple linear inequalities using graphs*	• Solves linear equations with fractions • Solves linear equations using rational numbers* • Solves open sentences with fractions • Writes linear equations when given ordered pairs* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Recognizes the slope of horizontal and vertical lines* • Identifies and describes situations with varying rates of change* • Describes a relationship or a real-world situation represented by a quadratic equation* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses the Multiplication Property of Equality as a first step in solving systems of linear equations* • Uses algebraic methods to solve systems of linear equations • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves linear inequalities using graphs
New Vocabulary: algebra, algebraic equation, associative, distributive, reflexive, substitution, transitive	*New Vocabulary:* algebraic sentence, arithmetic progression, equation of a line, is less than, linear graph, mathematical sentence, skew	*New Vocabulary:* algebra tile, domain, function table, polynomial, solution set, squared, system of equations, x-axis, y-intercept
New Signs and Symbols: ( ) parenthesis around an integer, ∩ intersection, ∅ null or empty set, + positive number, repeating decimal overbar, Δ triangle	*New Signs and Symbols:* f(x) the value of the function f at x, ≥ greater than or equal to, ≤ less than or equal to, • multiplication symbol (dot), – subtraction	*New Signs and Symbols:* { } set notation

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 241 - 250

Skills and Concepts to Enhance 231 - 240	Skills and Concepts to Develop 241 - 250	Skills and Concepts to Introduce 251 - 260
Patterns	**Patterns**	**Patterns**
• Recognizes and extends arithmetic sequences (predicts nth term) • Recognizes and extends the Fibonacci sequence*	• Represents growing arithmetic patterns using algebraic expressions or equations* • Uses an algebraic expression to represent a triangular number pattern*	• Estimates the limit of a given infinite sequence (e.g., given the sequence 1/n, as n gets larger)*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
• Represents real-world functions using an equation • Uses tables to determine function equations • Completes a function table according to a rule* • Models real life functions using function notation* • Identifies the graph type, given equations of linear and nonlinear functions*	• Uses tables to determine function equations • Completes a function table according to a rule (rational numbers)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Uses ordered pairs to graph a parabola* • Determines the x- and/or y-intercept of an equation of a function* • Performs operations on functions • Determines the domain and range of a function*	• 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 • 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*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Translates a problem to a symbolic expression or equation (analysis)* • Uses expressions to represent situations that involve variable quantities with exponents* • Uses basic operations on algebraic expressions (substituting for unknowns) • Uses basic operations on algebraic expressions (substituting for unknown exponents) • 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)*	• Uses expressions to represent situations that involve variable quantities with exponents* • Determines the expression for the area of a figure represented by algebra tiles • Evaluates expressions by substituting with rational numbers • Evaluates absolute-value algebraic expressions using substitution strategies* • Simplifies polynomial expressions • Multiplies binomials • Factors trinomials in the form x^2 + bx + c • Factors polynomials using difference of squares* • Uses linear equations to represent situations involving variable quantities	• Uses expressions to represent situations that involve variable quantities with exponents* • Uses expressions with absolute value to represent situations* • Evaluates expressions by substituting with rational numbers • Simplifies monomials • Simplifies polynomial expressions • Multiplies binomials • Multiplies a polynomial by a polynomial • Divides a polynomial by a monomial* • Factors polynomials by identifying common factors* • Factors trinomials in the form x^2 + bx + c • Factors polynomials using difference of squares*

 NJ 3.3.1

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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• 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 • 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 decimals* • Solves linear equations with integers • Solves linear equations with fractions • Solves open sentences with integers* • Solves linear equations using rational numbers* • Writes the equation of a horizontal or vertical line when given the graph of the line* • Determines the graph of a horizontal or vertical line when given the equation* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Expresses a simple linear inequality from a contextual situation • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves simple linear inequalities using graphs*	• Solves 2-step open sentences with missing factors (variables on both sides of the sentence)* • Solves linear equations with fractions • Solves linear equations using rational numbers* • Solves open sentences with fractions • Writes linear equations when given ordered pairs* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Recognizes the slope of horizontal and vertical lines* • Identifies and describes situations with varying rates of change* • Describes a relationship or a real-world situation represented by a quadratic equation* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses the Multiplication Property of Equality as a first step in solving systems of linear equations* • Uses algebraic methods to solve systems of linear equations • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves linear inequalities using graphs	• Writes equivalent forms of algebraic equations using multiplication and division • Solves linear equations using rational numbers* • Rewrites an equation for a line in standard form* • 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 an equation (analysis)* • Determines slope from graphs • Determines slope from ordered pairs and tables • Interprets the meaning of slope and intercepts in problem solving situations • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Uses algebraic terms appropriately (e.g., "equation," "inequality," "variable," "expression," "term," "coefficient," "domain," "range")* • Identifies discriminants and roots • 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 complex theoretical problems (e.g., using distributive property, variables on both sides)* • Rewrites an equation as a first step in factoring* • Uses polynomial equations to solve area and perimeter problems • Solves polynomial equations using binomial expansion* • Solves polynomial equations with integers as exponents* • Solves logarithmic equations* • 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 single variable linear inequalities with variable in both members using number lines

* 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.

New Vocabulary: algebraic sentence, arithmetic progression, equation of a line, is less than, linear graph, mathematical sentence, skew	*New Vocabulary:* algebra tile, domain, function table, polynomial, solution set, squared, system of equations, x-axis, y-intercept	*New Vocabulary:* coordinate plane, empty set, geometric series, quadratic equation, undefined, wider, x-coordinate, x-intercept, y-coordinate
New Signs and Symbols: f(x) the value of the function f at x, ≥ greater than or equal to, ≤ less than or equal to, • multiplication symbol (dot), –	*New Signs and Symbols:* { } set notation	*New Signs and Symbols:* || absolute value, cm centimeter/centimetre, m meter/metre, – negative sign, % percent, square root symbol

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 251 - 260

Skills and Concepts to Enhance 241 - 250	Skills and Concepts to Develop 251 - 260	Skills and Concepts to Introduce 261 - 270
Patterns	**Patterns**	**Patterns**
• Represents growing arithmetic patterns using algebraic expressions or equations* • Uses an algebraic expression to represent a triangular number pattern*	• Estimates the limit of a given infinite sequence (e.g., given the sequence 1/n, as n gets larger)*	• Uses the compound interest equation to solve problems
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
• Uses tables to determine function equations • Completes a function table according to a rule (rational numbers)* • Represents a real-world function using a complex equation (e.g., variables on both sides, distributive, rational) • Models real life functions using function notation* • Uses ordered pairs to graph a parabola* • Determines the x- and/or y-intercept of an equation of a function* • Performs operations on functions • Determines the domain and range of a function*	• 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 • 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*	• Determines the minimum and maximum of a quadratic function*
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Uses expressions to represent situations that involve variable quantities with exponents* • Determines the expression for the area of a figure represented by algebra tiles • Evaluates expressions by substituting with rational numbers • Evaluates absolute-value algebraic expressions using substitution strategies* • Simplifies polynomial expressions • Multiplies binomials • Factors trinomials in the form x^2 + bx + c • Factors polynomials using difference of squares* • Uses linear equations to represent situations involving variable quantities	• Uses expressions to represent situations that involve variable quantities with exponents* • Uses expressions with absolute value to represent situations* • Evaluates expressions by substituting with rational numbers • Simplifies monomials • Simplifies polynomial expressions • Multiplies binomials • Multiplies a polynomial by a polynomial • Divides a polynomial by a monomial* • Factors polynomials by identifying common factors* • Factors trinomials in the form x^2 + bx + c • Factors polynomials using difference of squares*	• Simplifies monomials • Simplifies polynomial expressions using power laws* • Factors polynomials by identifying a common monomial and then factoring the trinomial • Determines x- or y-intercept of a given linear equation* • Writes the equation of the line when given the graph of the line* • Writes linear equations, given slope and point on a line • Determines slope from an equation (analysis)* • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Solves quadratic equations using the quadratic formula • Solves quadratic equations by completing the square*

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• Solves 2-step open sentences with missing factors (variables on both sides of the sentence)* • Solves linear equations with fractions • Solves linear equations using rational numbers* • Solves open sentences with fractions • Writes linear equations when given ordered pairs* • Determines slope from a linear equation* • Using the slope of an equation, identifies parallel and perpendicular lines* • Recognizes the slope of horizontal and vertical lines* • Identifies and describes situations with varying rates of change* • Describes a relationship or a real-world situation represented by a quadratic equation* • Uses polynomial equations to solve complex real-world problems (e.g., using distributive property, variables on both sides) • Uses the Multiplication Property of Equality as a first step in solving systems of linear equations* • Uses algebraic methods to solve systems of linear equations • Describes the relationship or a real-world situation represented by a simple linear inequality (e.g., 1- or 2-step)* • Solves linear inequalities using graphs	• Writes equivalent forms of algebraic equations using multiplication and division • Solves linear equations using rational numbers* • Rewrites an equation for a line in standard form* • 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 an equation (analysis)* • Determines slope from graphs • Determines slope from ordered pairs and tables • Interprets the meaning of slope and intercepts in problem solving situations • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Uses algebraic terms appropriately (e.g., "equation," "inequality," "variable," "expression," "term," "coefficient," "domain," "range")* • Identifies discriminants and roots • 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 complex theoretical problems (e.g., using distributive property, variables on both sides)* • Rewrites an equation as a first step in factoring* • Uses polynomial equations to solve area and perimeter problems • Solves polynomial equations using binomial expansion* • Solves polynomial equations with integers as exponents* • Solves logarithmic equations* • 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 single variable linear inequalities with variable in both members using number lines	• Solves polynomial equations with fractions as exponents* • Solves logarithmic equations*

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New Vocabulary: algebra tile, domain, function table, polynomial, solution set, squared, system of equations, x-axis, y-intercept	*New Vocabulary:* coordinate plane, empty set, geometric series, quadratic equation, undefined, wider, x-coordinate, x-intercept, y-coordinate	*New Vocabulary:* compound interest, semi-annual
New Signs and Symbols: { } set notation	*New Signs and Symbols:* || absolute value, cm centimeter/centimetre, m meter/metre, – negative sign, % percent, square root symbol	*New Signs and Symbols:* P principal, r rate, t time

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: 261 - 270

Skills and Concepts to Enhance 251 - 260	Skills and Concepts to Develop 261 - 270	Skills and Concepts to Introduce Above 270
Patterns	**Patterns**	**Patterns**
• Estimates the limit of a given infinite sequence (e.g., given the sequence 1/n, as n gets larger)*	• Uses the compound interest equation to solve problems	• Solves problems involving successive discounts*
Functions and Relationships	**Functions and Relationships**	**Functions and Relationships**
• 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 • 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*	• Determines the minimum and maximum of a quadratic function*	
Modeling and Procedures	**Modeling and Procedures**	**Modeling and Procedures**
• Uses expressions to represent situations that involve variable quantities with exponents* • Uses expressions with absolute value to represent situations* • Evaluates expressions by substituting with rational numbers • Simplifies monomials • Simplifies polynomial expressions • Multiplies binomials • Multiplies a polynomial by a polynomial • Divides a polynomial by a monomial* • Factors polynomials by identifying common factors* • Factors trinomials in the form x^2 + bx + c • Factors polynomials using difference of squares* • Writes equivalent forms of algebraic equations using multiplication and division	• Simplifies monomials • Simplifies polynomial expressions using power laws* • Factors polynomials by identifying a common monomial and then factoring the trinomial • Determines x- or y-intercept of a given linear equation* • Writes the equation of the line when given the graph of the line* • Writes linear equations, given slope and point on a line • Determines slope from an equation (analysis)* • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Solves quadratic equations using the quadratic formula • Solves quadratic equations by completing the square* • Solves polynomial equations with fractions as exponents*	

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Solves linear equations using rational numbers* • Rewrites an equation for a line in standard form* • 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 an equation (analysis)* • Determines slope from graphs • Determines slope from ordered pairs and tables • Interprets the meaning of slope and intercepts in problem solving situations • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Uses algebraic terms appropriately (e.g., "equation," "inequality," "variable," "expression," "term," "coefficient," "domain," "range")* • Identifies discriminants and roots • 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 complex theoretical problems (e.g., using distributive property, variables on both sides)* • Rewrites an equation as a first step in factoring* • Uses polynomial equations to solve area and perimeter problems • Solves polynomial equations using binomial expansion* • Solves polynomial equations with integers as exponents* • Solves logarithmic equations* • 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 single variable linear inequalities with variable in both members using number lines	• Solves logarithmic equations*	
New Vocabulary: coordinate plane, empty set, geometric series, quadratic equation, undefined, wider,	*New Vocabulary:* compound interest, semi-annual	*New Vocabulary:* none

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x-coordinate, x-intercept, y-coordinate		
New Signs and Symbols: || absolute value, cm centimeter/centimetre, m meter/metre, − negative sign, % percent, square root symbol	*New Signs and Symbols:* P principal, r rate, t time	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Patterns and Algebra
RIT Score Range: Above 270

Skills and Concepts to Enhance 261 - 270	Skills and Concepts to Develop Above 270
Patterns	**Patterns**
• Uses the compound interest equation to solve problems	• Solves problems involving successive discounts*
Functions and Relationships	**Functions and Relationships**
• Determines the minimum and maximum of a quadratic function*	
Modeling and Procedures	**Modeling and Procedures**
• Simplifies monomials • Simplifies polynomial expressions using power laws* • Factors polynomials by identifying a common monomial and then factoring the trinomial • Determines x- or y-intercept of a given linear equation* • Writes the equation of the line when given the graph of the line* • Writes linear equations, given slope and point on a line • Determines slope from an equation (analysis)* • Determines the slope of parallel lines* • Determines the slope of perpendicular lines* • Solves quadratic equations using the quadratic formula • Solves quadratic equations by completing the square* • Solves polynomial equations with fractions as exponents* • Solves logarithmic equations*	
New Vocabulary: compound interest, semi-annual	*New Vocabulary:* none
New Signs and Symbols: `P` principal, `r` rate, `t` time	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: Below 171

Skills and Concepts to Develop Below 171	Skills and Concepts to Introduce 171 - 180
Data Analysis	**Data Analysis**
• Compares data from simple graphs (e.g., largest, smallest, most often, least often)	• Interprets simple graphs or tables • Interprets data using tally charts • Reads and interprets data from a pictograph* • Displays data appropriately - bar graph - scale is 1 to 1* • Compares data from simple graphs (e.g., largest, smallest, most often, least often)
Probability	**Probability**
	• Investigates probability of "more likely" or "less likely" using a table*
Discrete Mathematics	**Discrete Mathematics**
New Vocabulary: dollar, fewest, longest, shortest	*New Vocabulary:* none
New Signs and Symbols: $ dollar sign, = is equal to	*New Signs and Symbols:* | tally mark

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 171 - 180

Skills and Concepts to Enhance Below 171	Skills and Concepts to Develop 171 - 180	Skills and Concepts to Introduce 181 - 190
Data Analysis	**Data Analysis**	**Data Analysis**
• Compares data from simple graphs (e.g., largest, smallest, most often, least often)	• Interprets simple graphs or tables • Interprets data using tally charts • Reads and interprets data from a pictograph* • Displays data appropriately - bar graph - scale is 1 to 1* • Compares data from simple graphs (e.g., largest, smallest, most often, least often)	• Interprets simple graphs or tables • Reads and interprets data from a bar graph
Probability	**Probability**	**Probability**
	• Investigates probability of "more likely" or "less likely" using a table*	• Investigates probability of "more likely" or "less likely" using a spinner • Investigates probability of "more likely" or "less likely" with objects hidden in containers*
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
New Vocabulary: dollar, fewest, longest, shortest	*New Vocabulary:* none	*New Vocabulary:* average, consecutive, lowest, most likely, most often, spinner
New Signs and Symbols: $ dollar sign, = is equal to	*New Signs and Symbols:* | tally mark	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 181 - 190

Skills and Concepts to Enhance 171 - 180	Skills and Concepts to Develop 181 - 190	Skills and Concepts to Introduce 191 - 200
Data Analysis	**Data Analysis**	**Data Analysis**
• Interprets simple graphs or tables • Interprets data using tally charts • Reads and interprets data from a pictograph* • Displays data appropriately - bar graph - scale is 1 to 1* • Compares data from simple graphs (e.g., largest, smallest, most often, least often)	• Interprets simple graphs or tables • Reads and interprets data from a bar graph	• Reads and interprets data from a bar graph • Reads and interprets dual bar graphs* • Reads and interprets simple line graphs • Reads and interprets data given in percent form on a circle graph* • Draws conclusions from data - tally charts or frequency tables*
Probability	**Probability**	**Probability**
• Investigates probability of "more likely" or "less likely" using a table*	• Investigates probability of "more likely" or "less likely" using a spinner • Investigates probability of "more likely" or "less likely" with objects hidden in containers*	• Investigates probability of "more likely" or "less likely" using a spinner • Investigates probability of "more likely" or "less likely" with a dart board*
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
New Vocabulary: none	*New Vocabulary:* average, consecutive, lowest, most likely, most often, spinner	*New Vocabulary:* line graph
New Signs and Symbols: | tally mark	*New Signs and Symbols:* none	*New Signs and Symbols:* a.m., °F degrees Fahrenheit, p.m., % percent, : used with time

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 191 - 200

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
Data Analysis	**Data Analysis**	**Data Analysis**
• Interprets simple graphs or tables • Reads and interprets data from a bar graph	• Reads and interprets data from a bar graph • Reads and interprets dual bar graphs* • Reads and interprets simple line graphs • Reads and interprets data given in percent form on a circle graph* • Draws conclusions from data - tally charts or frequency tables*	• Reads and interprets tables* • Understands how the omission or duplication of data affects the interpretation of results from a pictograph* • Organizes data to create simple bar graphs • Displays data appropriately - simple circle graph - no calculations necessary* • Reads and interprets data given in percent form on a circle graph* • Interprets data given in circle graphs to solve simple problems (with percents) • Draws conclusions from data - bar graphs • Predicts from pictographs and bar graphs* • Predicts from simple charts and tables
Probability	**Probability**	**Probability**
• Investigates probability of "more likely" or "less likely" using a spinner • Investigates probability of "more likely" or "less likely" with objects hidden in containers*	• Investigates probability of "more likely" or "less likely" using a spinner • Investigates probability of "more likely" or "less likely" with a dart board*	• 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 • Determines the probability for a simple experiment using objects - must determine size of sample space
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
		• Follows, devises, and describes practical sets of directions (e.g., to add two 2-digit numbers)*
New Vocabulary: average, consecutive, lowest, most likely, most often, spinner	*New Vocabulary:* line graph	*New Vocabulary:* bar graph, below, chance, less likely, maximum, probability, random
New Signs and Symbols: none	*New Signs and Symbols:* a.m., °F degrees Fahrenheit, p.m., % percent, : used with time	*New Signs and Symbols:* E east, lb pound, min minute, mph miles per hour, NE northeast, NW northwest, SE southeast, SW southwest

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 201 - 210

Skills and Concepts to Enhance 191 - 200	Skills and Concepts to Develop 201 - 210	Skills and Concepts to Introduce 211 - 220
Data Analysis	**Data Analysis**	**Data Analysis**
• Reads and interprets data from a bar graph • Reads and interprets dual bar graphs* • Reads and interprets simple line graphs • Reads and interprets data given in percent form on a circle graph* • Draws conclusions from data - tally charts or frequency tables*	• Reads and interprets tables* • Understands how the omission or duplication of data affects the interpretation of results from a pictograph* • Organizes data to create simple bar graphs • Displays data appropriately - simple circle graph - no calculations necessary* • Reads and interprets data given in percent form on a circle graph* • Interprets data given in circle graphs to solve simple problems (with percents) • Draws conclusions from data - bar graphs • Predicts from pictographs and bar graphs* • Predicts from simple charts and tables	• Interprets data in line graphs (e.g., change over time) • Reads and interprets circle graphs* • Interprets data given in circle graphs to solve simple problems (with percents) • Reads and interprets data in line plots* • Determines the average (mean) of a simple set of data • Draws conclusions from data - charts* • Predicts from pictographs and bar graphs* • Predicts from plotted data*
Probability	**Probability**	**Probability**
• Investigates probability of "more likely" or "less likely" using a spinner • Investigates probability of "more likely" or "less likely" with a dart board*	• 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 • Determines the probability for a simple experiment using objects - must determine size of sample space	• 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 • Determines the complement of a simple event* • Determines the possible outcomes for a simple probability experiment using spinners • 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*
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
	• Follows, devises, and describes practical sets of directions (e.g., to add two 2-digit numbers)*	• Solves problems involving permutations • Determines the number of possible combinations of given items
New Vocabulary: line graph	*New Vocabulary:* bar graph, below, chance, less likely,	*New Vocabulary:* combinations, likelihood, line of best fit,

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	maximum, probability, random	line plot, mean, number cube, outcome, prove, tails
New Signs and Symbols: a.m., °F degrees Fahrenheit, p.m., % percent, : used with time	*New Signs and Symbols:* E east, lb pound, min minute, mph miles per hour, NE northeast, NW northwest, SE southeast, SW southwest	*New Signs and Symbols:* { } set notation, ¢ cent sign, d distance, P( ) probability, t time

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 211 - 220

Skills and Concepts to Enhance 201 - 210	Skills and Concepts to Develop 211 - 220	Skills and Concepts to Introduce 221 - 230
Data Analysis	**Data Analysis**	**Data Analysis**
• Reads and interprets tables* • Understands how the omission or duplication of data affects the interpretation of results from a pictograph* • Organizes data to create simple bar graphs • Displays data appropriately - simple circle graph - no calculations necessary* • Reads and interprets data given in percent form on a circle graph* • Interprets data given in circle graphs to solve simple problems (with percents) • Draws conclusions from data - bar graphs • Predicts from pictographs and bar graphs* • Predicts from simple charts and tables	• Interprets data in line graphs (e.g., change over time) • Reads and interprets circle graphs* • Interprets data given in circle graphs to solve simple problems (with percents) • Reads and interprets data in line plots* • Determines the average (mean) of a simple set of data • Draws conclusions from data - charts* • Predicts from pictographs and bar graphs* • Predicts from plotted data*	• Interprets data given in tables to solve problems • Interprets data given in circle graphs to solve complex problems (with percents) • 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) • Estimates the mean from a set of data* • Determines the middle value (median) from a simple set of data* • Determines the mode of a set of data • Explains rationale for determining the mean, median, or mode of a set of data* • Draws conclusions from data - charts* • Predicts from line graphs* • Predicts from plotted data*
Probability	**Probability**	**Probability**
• 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 • Determines the probability for a simple experiment using objects - must determine size of sample space	• 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 • Determines the complement of a simple event* • Determines the possible outcomes for a simple probability experiment using spinners • 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*	• Determines likelihood using tree diagrams* • Determines probability - must determine size of sample space • 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* • Uses previous results to predict future events* • Computes probability as a fraction, given equivalent forms* • Given probability as a decimal, estimates probability as a fraction* • Identifies whether predictions are based on theoretical or experimental probability*
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
• Follows, devises, and describes practical sets of directions (e.g., to add two 2-digit numbers)*	• Solves problems involving permutations • Determines the number of possible combinations of	• Solves problems involving combinations • Determines the number of possible combinations of

* 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.

	given items	given items • Determines the outcome of simple multiple events*
New Vocabulary: bar graph, below, chance, less likely, maximum, probability, random	*New Vocabulary:* combinations, likelihood, line of best fit, line plot, mean, number cube, outcome, prove, tails	*New Vocabulary:* experimental probability, frequency table, median, mode, theoretical probability
New Signs and Symbols: E east, lb pound, min minute, mph miles per hour, NE northeast, NW northwest, SE southeast, SW southwest	*New Signs and Symbols:* { } set notation, ¢ cent sign, d distance, P( ) probability, t time	*New Signs and Symbols:* cm centimeter/centimetre, h hour (SI metric), in. inch, – negative number, oz ounce, s second (SI metric)

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 221 - 230

Skills and Concepts to Enhance 211 - 220	Skills and Concepts to Develop 221 - 230	Skills and Concepts to Introduce 231 - 240
Data Analysis	**Data Analysis**	**Data Analysis**
• Interprets data in line graphs (e.g., change over time) • Reads and interprets circle graphs* • Interprets data given in circle graphs to solve simple problems (with percents) • Reads and interprets data in line plots* • Determines the average (mean) of a simple set of data • Draws conclusions from data - charts* • Predicts from pictographs and bar graphs* • Predicts from plotted data*	• Interprets data given in tables to solve problems • Interprets data given in circle graphs to solve complex problems (with percents) • 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) • Estimates the mean from a set of data* • Determines the middle value (median) from a simple set of data* • Determines the mode of a set of data • Explains rationale for determining the mean, median, or mode of a set of data* • Draws conclusions from data - charts* • Predicts from line graphs* • Predicts from plotted data*	• Organizes data using tables* • Interprets data given in tables to solve problems • Determines appropriate intervals and/or scale for a bar graph* • Interprets data given in horizontal and vertical bar graphs to solve problems • Interprets data given in line graphs to solve problems* • Interprets data given in circle graphs to solve complex problems (with percents) • 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) • Estimates the mean from a set of data* • Determines the median from a complex set of data (e.g., not in order, many data points) • Determines the range of a complex set of data • Estimates line of best fit to make predictions • Predicts from an analysis of data and statistical measures* • Predicts from charts and tables
Probability	**Probability**	**Probability**
• 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 • Determines the complement of a simple event* • Determines the possible outcomes for a simple probability experiment using spinners • Predicts the sample space, based on the outcome of an experiment - tally sheet*	• Determines likelihood using tree diagrams* • Determines probability - must determine size of sample space • 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* • Uses previous results to predict future events* • Computes probability as a fraction, given equivalent forms* • Given probability as a decimal, estimates probability as a fraction* • Identifies whether predictions are based on theoretical	• Determines certainty from a set data* • Determines sample space given probability of all possible outcomes* • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event* • Determines the probability of independent simple compound events • Determines the complement of a complex event* • Recognizes the relationship between events and probability - selects an experiment which matches a given probability*

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Blank cells indicate data are limited or unavailable for this range or document version.

• Uses the results of probability experiments or events to predict future events*	or experimental probability*	
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
• Solves problems involving permutations • Determines the number of possible combinations of given items	• Solves problems involving combinations • Determines the number of possible combinations of given items • Determines the outcome of simple multiple events*	• Constructs simple, valid arguments using if ...then statements based on Venn diagrams*
New Vocabulary: combinations, likelihood, line of best fit, line plot, mean, number cube, outcome, prove, tails	*New Vocabulary:* experimental probability, frequency table, median, mode, theoretical probability	*New Vocabulary:* average salary, box-and-whisker plot, data point, interquartile range, lower quartile, meters per minute, middle, outlier, percentile, quartile, sample, successive, upper quartile
New Signs and Symbols: { } set notation, ¢ cent sign, d distance, P( ) probability, t time	*New Signs and Symbols:* cm centimeter/centimetre, h hour (SI metric), in. inch, – negative number, oz ounce, s second (SI metric)	*New Signs and Symbols:* ( ) ordered pair, $ dollar sign, °C degrees Celsius, g gram, m meter/metre, mL milliliter/millilitre, ? next in sequence

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 231 - 240

Skills and Concepts to Enhance 221 - 230	Skills and Concepts to Develop 231 - 240	Skills and Concepts to Introduce 241 - 250
Data Analysis	**Data Analysis**	**Data Analysis**
• Interprets data given in tables to solve problems • Interprets data given in circle graphs to solve complex problems (with percents) • 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) • Estimates the mean from a set of data* • Determines the middle value (median) from a simple set of data* • Determines the mode of a set of data • Explains rationale for determining the mean, median, or mode of a set of data* • Draws conclusions from data - charts* • Predicts from line graphs* • Predicts from plotted data*	• Organizes data using tables* • Interprets data given in tables to solve problems • Determines appropriate intervals and/or scale for a bar graph* • Interprets data given in horizontal and vertical bar graphs to solve problems • Interprets data given in line graphs to solve problems* • Interprets data given in circle graphs to solve complex problems (with percents) • 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) • Estimates the mean from a set of data* • Determines the median from a complex set of data (e.g., not in order, many data points) • Determines the range of a complex set of data • Estimates line of best fit to make predictions • Predicts from an analysis of data and statistical measures* • Predicts from charts and tables	• Reads and interprets data in tables • Reads and interprets data in box-and-whisker plots • Determines the range of a complex set of data • Predicts from an analysis of data and statistical measures*
Probability	**Probability**	**Probability**
• Determines likelihood using tree diagrams* • Determines probability - must determine size of sample space • 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* • Uses previous results to predict future events* • Computes probability as a fraction, given equivalent forms* • Given probability as a decimal, estimates probability as a fraction* • Identifies whether predictions are based on theoretical	• Determines certainty from a set data* • Determines sample space given probability of all possible outcomes* • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event* • Determines the probability of independent simple compound events • Determines the complement of a complex event* • Recognizes the relationship between events and probability - selects an experiment which matches a given probability*	• Determines certainty from a set data* • Determines probability using counting procedures* • Determines probability using tables • Determines the complement of a complex event* • Determines probability using an area model • Uses theoretical probability to predict future events

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or experimental probability*		
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
• Solves problems involving combinations • Determines the number of possible combinations of given items • Determines the outcome of simple multiple events*	• Constructs simple, valid arguments using if ...then statements based on Venn diagrams*	• Uses multiplication principle of counting to determine possibilities • Uses counting procedures to determine possibilities*
New Vocabulary: experimental probability, frequency table, median, mode, theoretical probability	*New Vocabulary:* average salary, box-and-whisker plot, data point, interquartile range, lower quartile, meters per minute, middle, outlier, percentile, quartile, sample, successive, upper quartile	*New Vocabulary:* mileage table
New Signs and Symbols: cm centimeter/centimetre, h hour (SI metric), in. inch, – negative number, oz ounce, s second (SI metric)	*New Signs and Symbols:* ( ) ordered pair, $ dollar sign, °C degrees Celsius, g gram, m meter/metre, mL milliliter/millilitre, ? next in sequence	*New Signs and Symbols:* ° degrees, ft feet, × multiplication, NNE north northeast, N north, S south, W west

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 241 - 250

Skills and Concepts to Enhance 231 - 240	Skills and Concepts to Develop 241 - 250	Skills and Concepts to Introduce 251 - 260
Data Analysis	**Data Analysis**	**Data Analysis**
• Organizes data using tables* • Interprets data given in tables to solve problems • Determines appropriate intervals and/or scale for a bar graph* • Interprets data given in horizontal and vertical bar graphs to solve problems • Interprets data given in line graphs to solve problems* • Interprets data given in circle graphs to solve complex problems (with percents) • 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) • Estimates the mean from a set of data* • Determines the median from a complex set of data (e.g., not in order, many data points) • Determines the range of a complex set of data • Estimates line of best fit to make predictions • Predicts from an analysis of data and statistical measures* • Predicts from charts and tables	• Reads and interprets data in tables • Reads and interprets data in box-and-whisker plots • Determines the range of a complex set of data • Predicts from an analysis of data and statistical measures*	• Displays data appropriately - circle graph - calculations necessary* • Computes and compares mean, median, mode, and range in simple examples to demonstrate that they may differ for a given set of data* • Evaluates how adding data to a set of data affects the measures of center* • Uses the regression line method to make predictions*
Probability	**Probability**	**Probability**
• Determines certainty from a set data* • Determines sample space given probability of all possible outcomes* • Determines probability - must determine size of sample space • Modifies sample space to change the probability of an event* • Determines the probability of independent simple compound events • Determines the complement of a complex event* • Recognizes the relationship between events and probability - selects an experiment which matches a given probability*	• Determines certainty from a set data* • Determines probability using counting procedures* • Determines probability using tables • Determines the complement of a complex event* • Determines probability using an area model • Uses theoretical probability to predict future events	• Determines certainty from a set data* • Determines the probabilities of complex compound events (independent)*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Discrete Mathematics	Discrete Mathematics	Discrete Mathematics
• Constructs simple, valid arguments using if ...then statements based on Venn diagrams*	• Uses multiplication principle of counting to determine possibilities • Uses counting procedures to determine possibilities*	• Uses factorial notation and computations to represent and solve problems*
New Vocabulary: average salary, box-and-whisker plot, data point, interquartile range, lower quartile, meters per minute, middle, outlier, percentile, quartile, sample, successive, upper quartile	*New Vocabulary:* mileage table	*New Vocabulary:* none
New Signs and Symbols: ( ) ordered pair, $ dollar sign, °C degrees Celsius, g gram, m meter/metre, mL milliliter/millilitre, ? next in sequence	*New Signs and Symbols:* ° degrees, ft feet, × multiplication, NNE north northeast, N north, S south, W west	*New Signs and Symbols:* + addition, ! factorial

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: 251 - 260

Skills and Concepts to Enhance 241 - 250	Skills and Concepts to Develop 251 - 260	Skills and Concepts to Introduce Above 260
Data Analysis	**Data Analysis**	**Data Analysis**
• Reads and interprets data in tables • Reads and interprets data in box-and-whisker plots • Determines the range of a complex set of data • Predicts from an analysis of data and statistical measures*	• Displays data appropriately - circle graph - calculations necessary* • Computes and compares mean, median, mode, and range in simple examples to demonstrate that they may differ for a given set of data* • Evaluates how adding data to a set of data affects the measures of center* • Uses the regression line method to make predictions*	• Reads and interprets interquartile range in box-and-whisker plots*
Probability	**Probability**	**Probability**
• Determines certainty from a set data* • Determines probability using counting procedures* • Determines probability using tables • Determines the complement of a complex event* • Determines probability using an area model • Uses theoretical probability to predict future events	• Determines certainty from a set data* • Determines the probabilities of complex compound events (independent)*	• Determines the probabilities of compound events (dependent)
Discrete Mathematics	**Discrete Mathematics**	**Discrete Mathematics**
• Uses multiplication principle of counting to determine possibilities • Uses counting procedures to determine possibilities*	• Uses factorial notation and computations to represent and solve problems*	
New Vocabulary: mileage table	*New Vocabulary:* none	*New Vocabulary:* none
New Signs and Symbols: ° degrees, ft feet, × multiplication, NNE north northeast, N north, S south, W west	*New Signs and Symbols:* + addition, ! factorial	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Data Analysis, Probability, Discrete Mathematics
RIT Score Range: Above 260

Skills and Concepts to Enhance 251 - 260	Skills and Concepts to Develop Above 260
Data Analysis	**Data Analysis**
• Displays data appropriately - circle graph - calculations necessary* • Computes and compares mean, median, mode, and range in simple examples to demonstrate that they may differ for a given set of data* • Evaluates how adding data to a set of data affects the measures of center* • Uses the regression line method to make predictions*	• Reads and interprets interquartile range in box-and-whisker plots*
Probability	**Probability**
• Determines certainty from a set data* • Determines the probabilities of complex compound events (independent)*	• Determines the probabilities of compound events (dependent)
Discrete Mathematics	**Discrete Mathematics**
• Uses factorial notation and computations to represent and solve problems*	
New Vocabulary: none	*New Vocabulary:* none
New Signs and Symbols: + addition, ! factorial	*New Signs and Symbols:* none

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: Below 171

Skills and Concepts to Develop Below 171	Skills and Concepts to Introduce 171 - 180
Problem Solving	**Problem Solving**
• Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves simple problems based on data from tables*	• 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 20 (change unknown)* • Solves real-world whole number addition problems with sums to 100 (result unknown)* • Solves real-world whole number addition problems with sums to 1000 • Solves real-world whole number problems involving subtraction with numbers under 20 • Solves simple problems based on data from pictographs • Solves simple problems based on data from bar graphs
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand simple problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Analyzes another student's explanation to understand simple problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses appropriate technology to solve problems* • Uses words, pictures, numbers, and technology to explain the solution to problems* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*
New Vocabulary: table	*New Vocabulary:* fewer, less, penny, quart, taller
New Signs and Symbols: none	*New Signs and Symbols:* ¢ cent sign, cm centimeter/centimetre, in. inch, lb pound

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 171 - 180

Skills and Concepts to Enhance Below 171	Skills and Concepts to Develop 171 - 180	Skills and Concepts to Introduce 181 - 190
Problem Solving	**Problem Solving**	**Problem Solving**
• Solves real-world whole number addition problems with sums to 20 (result unknown) • Solves simple problems based on data from tables*	• 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 20 (change unknown)* • Solves real-world whole number addition problems with sums to 100 (result unknown)* • Solves real-world whole number addition problems with sums to 1000 • Solves real-world whole number problems involving subtraction with numbers under 20 • Solves simple problems based on data from pictographs • Solves simple problems based on data from bar graphs	• Solves problems using ordinal numbers* • 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 (start unknown)* • Solves real-world whole number addition problems with sums to 100 (result unknown)* • Solves real-world whole number addition problems with sums to 1000 • Solves real-world whole number problems involving subtraction with numbers under 20 • 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 word problems involving basic whole number multiplication facts to 10 x 10 • Solves word problems with whole number division facts with dividend and divisors less that 11 involving money • Solves real-world whole number problems involving 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 addition or subtraction real-world problems involving money up to $5.00 • Solves simple problems based on data from tally charts* • Solves simple problems based on data from pictographs • Solves simple problems based on data from bar graphs
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand	• Analyzes another student's explanation to understand	• Analyzes another student's explanation to understand

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simple problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	simple problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses appropriate technology to solve problems* • Uses words, pictures, numbers, and technology to explain the solution to problems* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	simple problems* • Draws pictures to represent whole number problems* • Uses manipulatives to represent whole number problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses appropriate technology to solve problems* • Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g., "add more" becomes "plus")* • Uses words, pictures, numbers, and technology to explain the solution to problems* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*
New Vocabulary: table	*New Vocabulary:* fewer, less, penny, quart, taller	*New Vocabulary:* cost, fourth, product, subtrahend
New Signs and Symbols: none	*New Signs and Symbols:* ¢ cent sign, cm centimeter/centimetre, in. inch, lb pound	*New Signs and Symbols:* + addition, $ dollar sign, = is equal to, □ variable

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 181 - 190

Skills and Concepts to Enhance 171 - 180	Skills and Concepts to Develop 181 - 190	Skills and Concepts to Introduce 191 - 200
Problem Solving	**Problem Solving**	**Problem Solving**
• 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 20 (change unknown)* • Solves real-world whole number addition problems with sums to 100 (result unknown)* • Solves real-world whole number addition problems with sums to 1000 • Solves real-world whole number problems involving subtraction with numbers under 20 • Solves simple problems based on data from pictographs • Solves simple problems based on data from bar graphs	• Solves problems using ordinal numbers* • 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 (start unknown)* • Solves real-world whole number addition problems with sums to 100 (result unknown)* • Solves real-world whole number addition problems with sums to 1000 • Solves real-world whole number problems involving subtraction with numbers under 20 • 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 word problems involving basic whole number multiplication facts to 10 x 10 • Solves word problems with whole number division facts with dividend and divisors less that 11 involving money • Solves real-world whole number problems involving 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 addition or subtraction real-world problems involving money up to $5.00 • Solves simple problems based on data from tally charts* • Solves simple problems based on data from pictographs • Solves simple problems based on data from bar graphs	• Solves problems using ordinal numbers* • 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 (start unknown)* • 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 problems using the inverse relationship between addition and subtraction* • 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 • 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 • Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction* • 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

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		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) • Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%) • Solves simple problems involving elapsed time, with the conversion of hours • Solves problems involving measurement of temperature • Solves simple problems involving miles/kilometers per hour • Solves simple problems involving the perimeter of squares, rectangles, or triangles • Solves problems using tables • Solves problems using tally charts*
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand simple problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses appropriate technology to solve problems* • Uses words, pictures, numbers, and technology to explain the solution to problems* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Analyzes another student's explanation to understand simple problems* • Draws pictures to represent whole number problems* • Uses manipulatives to represent whole number problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses appropriate technology to solve problems* • Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g., "add more" becomes "plus")* • Uses words, pictures, numbers, and technology to explain the solution to problems* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Analyzes another student's explanation to understand more difficult problems* • Restates the problem in own words* • Selects the information necessary to solve a simple problem and determines whether any further information is needed • Draws pictures to represent whole number problems* • Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses calculators as problem solving tools (e.g., to explore patterns, to validate solutions)* • Uses technology to gather, analyze, and communicate mathematical information* • Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g., "add more" becomes "plus")* • Relates everyday language to mathematical language and symbols and progresses toward the use of appropriate terminology (e.g., "repeated addition" becomes "multiplication," "fair share" becomes

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		"divide," "balance the equation" becomes "solve the equation")** • Verifies reasonableness of results of simple problems* • Looks for a simple linear pattern in a table to solve a problem • Uses a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*
New Vocabulary: fewer, less, penny, quart, taller	*New Vocabulary:* cost, fourth, product, subtrahend	*New Vocabulary:* capacity, deposit, latest, longer, miles per hour, percent, rise, speed
New Signs and Symbols: ¢ cent sign, cm centimeter/centimetre, in. inch, lb pound	*New Signs and Symbols:* + addition, $ dollar sign, = is equal to, □ variable	*New Signs and Symbols:* a.m., °C degrees Celsius, °F degrees Fahrenheit, ft feet, g gram, min minute, mph miles per hour, × multiplication, oz ounce, p.m., % percent, R remainder, – subtraction, | tally mark, : used with time, yd yard

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 191 - 200

Skills and Concepts to Enhance 181 - 190	Skills and Concepts to Develop 191 - 200	Skills and Concepts to Introduce 201 - 210
Problem Solving	**Problem Solving**	**Problem Solving**
• Solves problems using ordinal numbers* • 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 (start unknown)* • Solves real-world whole number addition problems with sums to 100 (result unknown)* • Solves real-world whole number addition problems with sums to 1000 • Solves real-world whole number problems involving subtraction with numbers under 20 • 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 word problems involving basic whole number multiplication facts to 10 x 10 • Solves word problems with whole number division facts with dividend and divisors less that 11 involving money • Solves real-world whole number problems involving 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 addition or subtraction real-world problems involving money up to $5.00 • Solves simple problems based on data from tally charts* • Solves simple problems based on data from pictographs • Solves simple problems based on data from bar graphs	• Solves problems using ordinal numbers* • 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 (start unknown)* • 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 problems using the inverse relationship between addition and subtraction* • 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 • 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 • Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction* • 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	• Solves problems using ordinal numbers* • Uses number sense strategies to solve problems (addition/subtraction only) • Solves real-world whole number addition problems with sums to 100 (start unknown)* • 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 x 10 • 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 x 10 • 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) • Solves real-world problems involving addition and subtraction of integers* • Applies dimensional analysis to simple real-world problems (time)* • Solves problems using a calendar* • Solves simple problems involving elapsed time, with the conversion of hours • Solves simple problems involving miles per gallon • Solves simple problems involving miles/kilometers per

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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	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) • Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%) • Solves simple problems involving elapsed time, with the conversion of hours • Solves problems involving measurement of temperature • Solves simple problems involving miles/kilometers per hour • Solves simple problems involving the perimeter of squares, rectangles, or triangles • Solves problems using tables • Solves problems using tally charts*	hour • Determines unit price* • Solves problems using tables • Solves problems using bar graphs • Solves problems using dual bar graphs* • Solves problems using line graphs*
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand simple problems* • Draws pictures to represent whole number problems* • Uses manipulatives to represent whole number problems* • Uses a structured model to solve problems using a variety of strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses appropriate technology to solve problems* • Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g., "add more" becomes "plus")* • Uses words, pictures, numbers, and technology to explain the solution to problems* • Uses manipulatives to model and justify solutions* • Follows a model of problem solving that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Analyzes another student's explanation to understand more difficult problems* • Restates the problem in own words* • Selects the information necessary to solve a simple problem and determines whether any further information is needed • Draws pictures to represent whole number problems* • Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses calculators as problem solving tools (e.g., to explore patterns, to validate solutions)* • Uses technology to gather, analyze, and communicate mathematical information* • Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g., "add more" becomes "plus")* • Relates everyday language to mathematical language and symbols and progresses toward the use of appropriate terminology (e.g., "repeated addition" becomes "multiplication," "fair share" becomes	• Analyzes another student's explanation to understand more difficult problems* • Restates the problem in own words* • Selects the information necessary to solve a simple problem and determines whether any further information is needed • Draws pictures to represent whole number problems* • Uses manipulatives to represent problems* • Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses calculators as problem solving tools (e.g., to explore patterns, to validate solutions)* • Uses technology to gather, analyze, and communicate mathematical information* • Relates everyday language to mathematical language and symbols and progresses toward the use of appropriate terminology (e.g., "repeated addition" becomes "multiplication," "fair share" becomes "divide," "balance the equation" becomes "solve the equation")** • Verifies reasonableness of results of simple problems*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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	"divide," "balance the equation" becomes "solve the equation")** • Verifies reasonableness of results of simple problems* • Looks for a simple linear pattern in a table to solve a problem • Uses a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Uses manipulatives and models to demonstrate thinking processes* • Looks for a linear pattern to solve a problem • Looks for a repeating pattern to solve a problem* • Solves real-world problems using reasoning strategies • Use patterns and their generalizations to make and justify inferences and predictions* • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Uses a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*
New Vocabulary: cost, fourth, product, subtrahend	*New Vocabulary:* capacity, deposit, latest, longer, miles per hour, percent, rise, speed	*New Vocabulary:* above, annual, below, kilogram, miles per gallon, plus, square mile
New Signs and Symbols: + addition, $ dollar sign, = is equal to, □ variable	*New Signs and Symbols:* a.m., °C degrees Celsius, °F degrees Fahrenheit, ft feet, g gram, min minute, mph miles per hour, × multiplication, oz ounce, p.m., % percent, R remainder, – subtraction, | tally mark, : used with time, yd yard	*New Signs and Symbols:* kg kilogram, mpg miles per gallon, − negative number

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 201 - 210

Skills and Concepts to Enhance 191 - 200	Skills and Concepts to Develop 201 - 210	Skills and Concepts to Introduce 211 - 220
Problem Solving	**Problem Solving**	**Problem Solving**
• Solves problems using ordinal numbers* • 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 (start unknown)* • 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 problems using the inverse relationship between addition and subtraction* • 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 • 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 • Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction* • 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	• Solves problems using ordinal numbers* • Uses number sense strategies to solve problems (addition/subtraction only) • Solves real-world whole number addition problems with sums to 100 (start unknown)* • 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 x 10 • 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 x 10 • 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) • Solves real-world problems involving addition and subtraction of integers* • Applies dimensional analysis to simple real-world problems (time)* • Solves problems using a calendar* • Solves simple problems involving elapsed time, with the conversion of hours • Solves simple problems involving miles per gallon • Solves simple problems involving miles/kilometers per	• Uses number sense strategies to solve problems (multiplication/division)* • Evaluates number sense strategies used to solve problems* • Solves whole number word problems with division over 10 x 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* • 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)* • Solves real-world problems involving decimals (not money) using multiplication* • 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) • Solves real-world problems involving addition and subtraction of integers* • Solves real-world problems involving multiplication and division of integers* • Solves 1-step problems involving proportions • Apply dimensional analysis to simple real-world

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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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) • Solves problems involving basic percent concepts (e.g., 10%, 50%, 100%) • Solves simple problems involving elapsed time, with the conversion of hours • Solves problems involving measurement of temperature • Solves simple problems involving miles/kilometers per hour • Solves simple problems involving the perimeter of squares, rectangles, or triangles • Solves problems using tables • Solves problems using tally charts*	hour • Determines unit price* • Solves problems using tables • Solves problems using bar graphs • Solves problems using dual bar graphs* • Solves problems using line graphs*	problems (length)* • Solves simple problems involving measurement of weight* • Apply dimensional analysis to simple real-world problems (weight/mass)* • Apply dimensional analysis to simple real-world problems (capacity)* • Solves simple problems involving capacity* • Applies dimensional analysis to simple real-world problems (time)* • Solves difficult problems involving elapsed time, with the conversion of hours • Solves simple problems involving miles per gallon • Determines unit price* • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems using pictographs* • Solves problems using bar graphs • Solves problems using line graphs* • Solves problems using circle graphs* • Solves simple problems involving mean • Applies algebraic methods to solve theoretical problems • Solves problems involving simple functions*
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand more difficult problems* • Restates the problem in own words* • Selects the information necessary to solve a simple problem and determines whether any further information is needed • Draws pictures to represent whole number problems* • Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses calculators as problem solving tools (e.g., to explore patterns, to validate solutions)* • Uses technology to gather, analyze, and communicate mathematical information* • Relates everyday language to mathematical language and symbols, and progresses toward the use of appropriate terminology (e.g., "add more" becomes	• Analyzes another student's explanation to understand more difficult problems* • Restates the problem in own words* • Selects the information necessary to solve a simple problem and determines whether any further information is needed • Draws pictures to represent whole number problems* • Uses manipulatives to represent problems* • Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses calculators as problem solving tools (e.g., to explore patterns, to validate solutions)* • Uses technology to gather, analyze, and communicate mathematical information* • Relates everyday language to mathematical language and symbols and progresses toward the use of	• Analyzes another student's explanation to understand complex problems* • Restates the problem from various perspectives* • Determines the required information for solving a difficult problem and whether any further information is needed* • Determines the additional information required to solve problems* • Uses pictures to represent problems* • Uses diagrams to represent problems • Uses systematic lists to represent problems* • Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to generate and analyze data to solve problems* • Expresses the solution clearly and logically by using the

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"plus")* • Relates everyday language to mathematical language and symbols and progresses toward the use of appropriate terminology (e.g., "repeated addition" becomes "multiplication," "fair share" becomes "divide," "balance the equation" becomes "solve the equation")** • Verifies reasonableness of results of simple problems* • Looks for a simple linear pattern in a table to solve a problem • Uses a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	appropriate terminology (e.g., "repeated addition" becomes "multiplication," "fair share" becomes "divide," "balance the equation" becomes "solve the equation")** • Verifies reasonableness of results of simple problems* • Uses manipulatives and models to demonstrate thinking processes* • Looks for a linear pattern to solve a problem • Looks for a repeating pattern to solve a problem* • Solves real-world problems using reasoning strategies • Use patterns and their generalizations to make and justify inferences and predictions* • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Uses a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	appropriate mathematical terms and notation* • Verifies reasonableness of results of more difficult problems* • Uses manipulatives and models to demonstrate thinking processes* • Looks for a growing pattern to solve a problem • Solves real-world problems using reasoning strategies • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*
New Vocabulary: capacity, deposit, latest, longer, miles per hour, percent, rise, speed	*New Vocabulary:* above, annual, below, kilogram, miles per gallon, plus, square mile	*New Vocabulary:* coin, high, how long, interest, smaller, south, square meter, systematic list, triple
New Signs and Symbols: a.m., °C degrees Celsius, °F degrees Fahrenheit, ft feet, g gram, min minute, mph miles per hour, × multiplication, oz ounce, p.m., % percent, R remainder, – subtraction, | tally mark, : used with time, yd yard	*New Signs and Symbols:* kg kilogram, mpg miles per gallon, − negative number	*New Signs and Symbols:* $ dollar sign, : used with time, hr hour, ↓ measurement span down, ← measurement span left, → measurement span right, ↑ measurement span up, + positive number, = is equal to

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 211 - 220

Skills and Concepts to Enhance 201 - 210	Skills and Concepts to Develop 211 - 220	Skills and Concepts to Introduce 221 - 230
Problem Solving	**Problem Solving**	**Problem Solving**
• Solves problems using ordinal numbers* • Uses number sense strategies to solve problems (addition/subtraction only) • Solves real-world whole number addition problems with sums to 100 (start unknown)* • 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 x 10 • 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 x 10 • 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) • Solves real-world problems involving addition and subtraction of integers* • Applies dimensional analysis to simple real-world problems (time)* • Solves problems using a calendar* • Solves simple problems involving elapsed time, with the conversion of hours • Solves simple problems involving miles per gallon • Solves simple problems involving miles/kilometers per	• Uses number sense strategies to solve problems (multiplication/division)* • Evaluates number sense strategies used to solve problems* • Solves whole number word problems with division over 10 x 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* • 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)* • Solves real-world problems involving decimals (not money) using multiplication* • 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) • Solves real-world problems involving addition and subtraction of integers* • Solves real-world problems involving multiplication and division of integers* • Solves 1-step problems involving proportions • Apply dimensional analysis to simple real-world	• Uses number sense strategies to judge the reasonableness of given answers (multiplication/division only) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Uses division for multiple-step real-world problems (whole numbers)* • 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 • 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)* • Solves real-world problems involving rate of pay • 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* • Solves real-world problems involving multiplication and division of integers* • Solves problems involving ratios • Solves 1-step problems involving proportions • Solves problems involving percents

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hour • Determines unit price* • Solves problems using tables • Solves problems using bar graphs • Solves problems using dual bar graphs* • Solves problems using line graphs*	problems (length)* • Solves simple problems involving measurement of weight* • Apply dimensional analysis to simple real-world problems (weight/mass)* • Apply dimensional analysis to simple real-world problems (capacity)* • Solves simple problems involving capacity* • Applies dimensional analysis to simple real-world problems (time)* • Solves difficult problems involving elapsed time, with the conversion of hours • Solves simple problems involving miles per gallon • Determines unit price* • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems using pictographs* • Solves problems using bar graphs • Solves problems using line graphs* • Solves problems using circle graphs* • Solves simple problems involving mean • Applies algebraic methods to solve theoretical problems • Solves problems involving simple functions*	• Solves problems involving tax and tips • Solves problems involving simple interest rates with the formula • Solves problems comparing percents, fractions, and decimals* • Apply dimensional analysis to simple real-world problems (length)* • Solves problems involving length in the customary system and converts to larger or smaller units • Solves problems involving capacity in the customary system and converts to larger or smaller units* • Applies dimensional analysis to simple real-world problems (time)* • Solves difficult problems involving elapsed time, with the conversion of hours • Solves complex problems involving miles per gallon • Solves complex problems involving miles/kilometers per hour* • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems involving the perimeter of irregular or complex shapes • Solves problems involving perimeter and converts to larger or smaller units • Solves simple problems involving the area of a square or rectangle • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units)* • Solves problems using circle graphs* • Solves simple problems involving mean • Solves problems with missing data when the mean is known • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems* • Applies systems-of-linear-equations methods to solve theoretical problems • Solves problems involving simple functions*
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand more difficult problems* • Restates the problem in own words*	• Analyzes another student's explanation to understand complex problems* • Restates the problem from various perspectives*	• Analyzes another student's explanation to understand complex problems* • Restates the problem from various perspectives*

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• Selects the information necessary to solve a simple problem and determines whether any further information is needed • Draws pictures to represent whole number problems* • Uses manipulatives to represent problems* • Uses a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses calculators as problem solving tools (e.g., to explore patterns, to validate solutions)* • Uses technology to gather, analyze, and communicate mathematical information* • Relates everyday language to mathematical language and symbols and progresses toward the use of appropriate terminology (e.g., "repeated addition" becomes "multiplication," "fair share" becomes "divide," "balance the equation" becomes "solve the equation")** • Verifies reasonableness of results of simple problems* • Uses manipulatives and models to demonstrate thinking processes* • Looks for a linear pattern to solve a problem • Looks for a repeating pattern to solve a problem* • Solves real-world problems using reasoning strategies • Use patterns and their generalizations to make and justify inferences and predictions* • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Uses a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Determines the required information for solving a difficult problem and whether any further information is needed* • Determines the additional information required to solve problems* • Uses pictures to represent problems* • Uses diagrams to represent problems • Uses systematic lists to represent problems* • Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to generate and analyze data to solve problems* • Expresses the solution clearly and logically by using the appropriate mathematical terms and notation* • Verifies reasonableness of results of more difficult problems* • Uses manipulatives and models to demonstrate thinking processes* • Looks for a growing pattern to solve a problem • Solves real-world problems using reasoning strategies • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Identifies the question from a problem solving situation • Determines the required information for solving a difficult problem and whether any further information is needed* • Determines the additional information required to solve problems* • Uses pictures to represent problems* • Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to generate and analyze data to solve problems* • Organizes information from a paragraph to solve a problem* • Applies what was learned to a new and/or more complex problem* • Expresses the solution clearly and logically by using the appropriate mathematical terms and notation* • Verifies reasonableness of results of more difficult problems* • Looks for a growing pattern to solve a problem • Solves real-world problems using reasoning strategies • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*
New Vocabulary: above, annual, below, kilogram, miles per gallon, plus, square mile	*New Vocabulary:* coin, high, how long, interest, smaller, south, square meter, systematic list, triple	*New Vocabulary:* cord, cubic feet, cubic inch, equilateral, half hour, heaviest, lightest, net, rectangular shape, short, tax, whole
New Signs and Symbols: kg kilogram, mpg miles per gallon, − negative number	*New Signs and Symbols:* $ dollar sign, : used with time, hr hour, ↓ measurement span down, ← measurement span left, → measurement span right, ↑ measurement span up, + positive number, = is equal to	*New Signs and Symbols:* ( ) order of operations, ( ) parenthesis around an integer, ' feet, gal gallon, " inches, I interest, m meter/metre, : ratio

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 221 - 230

Skills and Concepts to Enhance 211 - 220	Skills and Concepts to Develop 221 - 230	Skills and Concepts to Introduce 231 - 240
Problem Solving	**Problem Solving**	**Problem Solving**
• Uses number sense strategies to solve problems (multiplication/division)* • Evaluates number sense strategies used to solve problems* • Solves whole number word problems with division over 10 x 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* • 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)* • Solves real-world problems involving decimals (not money) using multiplication* • 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) • Solves real-world problems involving addition and subtraction of integers* • Solves real-world problems involving multiplication and division of integers* • Solves 1-step problems involving proportions • Apply dimensional analysis to simple real-world	• Uses number sense strategies to judge the reasonableness of given answers (multiplication/division only) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Uses division for multiple-step real-world problems (whole numbers)* • 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 • 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)* • Solves real-world problems involving rate of pay • 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* • Solves real-world problems involving multiplication and division of integers* • Solves problems involving ratios • Solves 1-step problems involving proportions • Solves problems involving percents	• Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary • 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 • Solves real-world problems involving rate of pay with time and a half* • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Solves real-world problems involving addition and subtraction of integers (analysis)* • Solves real-world problems involving multiplication and division of integers (analysis)* • Solves problems involving ratios • Solves multiple-step problems involving proportions • 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 • Solves problems with scientific notation* • Solves problems involving length in the customary system and converts to larger or smaller units • Solves problems involving length in the metric system and converts to larger or smaller units* • Solves problems involving weight in the customary system and converts to larger or smaller units • Solves problems involving capacity in the customary system and converts to larger or smaller units*

 NJ 3.3.1

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.

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problems (length)* • Solves simple problems involving measurement of weight* • Apply dimensional analysis to simple real-world problems (weight/mass)* • Apply dimensional analysis to simple real-world problems (capacity)* • Solves simple problems involving capacity* • Applies dimensional analysis to simple real-world problems (time)* • Solves difficult problems involving elapsed time, with the conversion of hours • Solves simple problems involving miles per gallon • Determines unit price* • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems using pictographs* • Solves problems using bar graphs • Solves problems using line graphs* • Solves problems using circle graphs* • Solves simple problems involving mean • Applies algebraic methods to solve theoretical problems • Solves problems involving simple functions*	• Solves problems involving tax and tips • Solves problems involving simple interest rates with the formula • Solves problems comparing percents, fractions, and decimals* • Apply dimensional analysis to simple real-world problems (length)* • Solves problems involving length in the customary system and converts to larger or smaller units • Solves problems involving capacity in the customary system and converts to larger or smaller units* • Applies dimensional analysis to simple real-world problems (time)* • Solves difficult problems involving elapsed time, with the conversion of hours • Solves complex problems involving miles per gallon • Solves complex problems involving miles/kilometers per hour* • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems involving the perimeter of irregular or complex shapes • Solves problems involving perimeter and converts to larger or smaller units • Solves simple problems involving the area of a square or rectangle • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units)* • Solves problems using circle graphs* • Solves simple problems involving mean • Solves problems with missing data when the mean is known • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems* • Applies systems-of-linear-equations methods to solve theoretical problems • Solves problems involving simple functions*	• Solves complex problems involving miles per gallon • Solves problems comparing unit prices • Solves problems involving the perimeter of irregular or complex shapes • Solves perimeter problems comparing width and length • Describes the change in perimeter when dimensions of an object are altered* • Solves simple problems involving the area of a square or rectangle • 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)* • Solves problems with missing data when the mean is known • Applies algebraic methods to solve real-world problems* • Solves problems involving simple functions* • Solves problems involving complex functions
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand complex problems* • Restates the problem from various perspectives*	• Analyzes another student's explanation to understand complex problems* • Restates the problem from various perspectives*	• Uses equivalent representations to understand new mathematical content* • Uses pictures to represent problems*

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Determines the required information for solving a difficult problem and whether any further information is needed* • Determines the additional information required to solve problems* • Uses pictures to represent problems* • Uses diagrams to represent problems • Uses systematic lists to represent problems* • Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to generate and analyze data to solve problems* • Expresses the solution clearly and logically by using the appropriate mathematical terms and notation* • Verifies reasonableness of results of more difficult problems* • Uses manipulatives and models to demonstrate thinking processes* • Looks for a growing pattern to solve a problem • Solves real-world problems using reasoning strategies • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Identifies the question from a problem solving situation • Determines the required information for solving a difficult problem and whether any further information is needed* • Determines the additional information required to solve problems* • Uses pictures to represent problems* • Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to generate and analyze data to solve problems* • Organizes information from a paragraph to solve a problem* • Applies what was learned to a new and/or more complex problem* • Expresses the solution clearly and logically by using the appropriate mathematical terms and notation* • Verifies reasonableness of results of more difficult problems* • Looks for a growing pattern to solve a problem • Solves real-world problems using reasoning strategies • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Organizes information from a paragraph to solve a problem* • Analyzes complex problems to separate into simpler parts* • Verifies reasonableness of results of complex problems* • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*
New Vocabulary: coin, high, how long, interest, smaller, south, square meter, systematic list, triple	*New Vocabulary:* cord, cubic feet, cubic inch, equilateral, half hour, heaviest, lightest, net, rectangular shape, short, tax, whole	*New Vocabulary:* commission, depreciate, discount, regression equation, representative sample, time-and-a-half
New Signs and Symbols: $ dollar sign, : used with time, hr hour, ↓ measurement span down, ← measurement span left, → measurement span right, ↑ measurement span up, + positive number, = is equal to	*New Signs and Symbols:* ( ) order of operations, ( ) parenthesis around an integer, ' feet, gal gallon, " inches, I interest, m meter/metre, : ratio	*New Signs and Symbols:* BC, f(x) the value of the function f at x, > greater than, ≥ greater than or equal to, km kilometer/kilometre, < less than, ≤ less than or equal to

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 231 - 240

Skills and Concepts to Enhance 221 - 230	Skills and Concepts to Develop 231 - 240	Skills and Concepts to Introduce 241 - 250
Problem Solving	**Problem Solving**	**Problem Solving**
• Uses number sense strategies to judge the reasonableness of given answers (multiplication/division only) • Solves complex word problems involving whole number division with remainder (e.g., 2-step, 2-digit divisor) • Uses division for multiple-step real-world problems (whole numbers)* • 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 • 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)* • Solves real-world problems involving rate of pay • 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* • Solves real-world problems involving multiplication and division of integers* • Solves problems involving ratios • Solves 1-step problems involving proportions • Solves problems involving percents	• Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary • 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 • Solves real-world problems involving rate of pay with time and a half* • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Solves real-world problems involving addition and subtraction of integers (analysis)* • Solves real-world problems involving multiplication and division of integers (analysis)* • Solves problems involving ratios • Solves multiple-step problems involving proportions • 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 • Solves problems with scientific notation* • Solves problems involving length in the customary system and converts to larger or smaller units • Solves problems involving length in the metric system and converts to larger or smaller units* • Solves problems involving weight in the customary system and converts to larger or smaller units • Solves problems involving capacity in the customary system and converts to larger or smaller units*	• Solves real-world problems involving addition and subtraction of integers (analysis)* • Solves real-world problems involving multiplication and division of integers (analysis)* • Solves multiple-step problems involving proportions • Solves problems involving a fractional increase* • 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 simple interest rates without the formula • Solves problems with scientific notation* • Solves problems involving length in the metric system and converts to larger or smaller units* • 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* • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves problems involving measurement of angles* • Solves complex problems involving the measurement of angles* • Solves problems involving the perimeter of squares, rectangles, or triangles (analysis) • Solves perimeter problems comparing width and length • Solves problems involving area of a rectangle and converts to larger or smaller units (customary) • Solves problems involving area of a circle • Calculates the area of irregular shapes (metric units)* • Solves complex problems involving inscribed figures

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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• Solves problems involving tax and tips • Solves problems involving simple interest rates with the formula • Solves problems comparing percents, fractions, and decimals* • Apply dimensional analysis to simple real-world problems (length)* • Solves problems involving length in the customary system and converts to larger or smaller units • Solves problems involving capacity in the customary system and converts to larger or smaller units* • Applies dimensional analysis to simple real-world problems (time)* • Solves difficult problems involving elapsed time, with the conversion of hours • Solves complex problems involving miles per gallon • Solves complex problems involving miles/kilometers per hour* • Solves problems involving the perimeter of squares, rectangles, or triangles • Solves problems involving the perimeter of irregular or complex shapes • Solves problems involving perimeter and converts to larger or smaller units • Solves simple problems involving the area of a square or rectangle • Calculates the volume of a rectangular prism, and converts to a different measurement scale (customary units)* • Solves problems using circle graphs* • Solves simple problems involving mean • Solves problems with missing data when the mean is known • Applies algebraic methods to solve theoretical problems • Applies algebraic methods to solve real-world problems* • Applies systems-of-linear-equations methods to solve theoretical problems • Solves problems involving simple functions*	• Solves complex problems involving miles per gallon • Solves problems comparing unit prices • Solves problems involving the perimeter of irregular or complex shapes • Solves perimeter problems comparing width and length • Describes the change in perimeter when dimensions of an object are altered* • Solves simple problems involving the area of a square or rectangle • 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)* • Solves problems with missing data when the mean is known • Applies algebraic methods to solve real-world problems* • Solves problems involving simple functions* • Solves problems involving complex functions	• Calculates the length of one side of a cube, given the volume (customary units)* • Determines the effects of changing dimensions on volume (no units) • 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 graphs to solve systems of linear equations in real-world situations* • Solves problems involving complex functions
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Analyzes another student's explanation to understand complex problems* • Restates the problem from various perspectives*	• Uses equivalent representations to understand new mathematical content* • Uses pictures to represent problems*	• Uses equivalent representations to understand new mathematical content* • Uses algebraic representations to model and interpret

* 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.

• Identifies the question from a problem solving situation • Determines the required information for solving a difficult problem and whether any further information is needed* • Determines the additional information required to solve problems* • Uses pictures to represent problems* • Applies a variety of problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to generate and analyze data to solve problems* • Organizes information from a paragraph to solve a problem* • Applies what was learned to a new and/or more complex problem* • Expresses the solution clearly and logically by using the appropriate mathematical terms and notation* • Verifies reasonableness of results of more difficult problems* • Looks for a growing pattern to solve a problem • Solves real-world problems using reasoning strategies • Produces a valid conjecture using inductive reasoning by generalizing from a pattern of observations* • Applies a problem solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness*	• Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Organizes information from a paragraph to solve a problem* • Analyzes complex problems to separate into simpler parts* • Verifies reasonableness of results of complex problems* • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*	mathematical and real-world situations* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Verifies reasonableness of results of complex problems* • Uses reasoning strategies to solve problems* • Identifies the converse or inverse of a conditional statement* • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*
New Vocabulary: cord, cubic feet, cubic inch, equilateral, half hour, heaviest, lightest, net, rectangular shape, short, tax, whole	*New Vocabulary:* commission, depreciate, discount, regression equation, representative sample, time-and-a-half	*New Vocabulary:* converse, feet per second, inscribe, linear foot, number sequence, point of intersection, quadrupled, rectangular area, semicircle, square kilometer, square yard
New Signs and Symbols: ( ) order of operations, ( ) parenthesis around an integer, ' feet, gal gallon, " inches, I interest, m meter/metre, : ratio	*New Signs and Symbols:* BC, f(x) the value of the function f at x, > greater than, ≥ greater than or equal to, km kilometer/kilometre, < less than, ≤ less than or equal to	*New Signs and Symbols:* ≈ approximately equal to, cubic centimeter/centimetre, ° degrees, L liter/litre, mL milliliter/millilitre, π pi, • point, right angle marker, sec second, square centimeter/centimetre

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 241 - 250

Skills and Concepts to Enhance 231 - 240	Skills and Concepts to Develop 241 - 250	Skills and Concepts to Introduce 251 - 260
Problem Solving	**Problem Solving**	**Problem Solving**
• Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary • 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 • Solves real-world problems involving rate of pay with time and a half* • Solves difficult real-world problems involving decimals (e.g., multiple multiplications, conversions) • Solves real-world problems involving addition and subtraction of integers (analysis)* • Solves real-world problems involving multiplication and division of integers (analysis)* • Solves problems involving ratios • Solves multiple-step problems involving proportions • 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 • Solves problems with scientific notation* • Solves problems involving length in the customary system and converts to larger or smaller units • Solves problems involving length in the metric system and converts to larger or smaller units* • Solves problems involving weight in the customary system and converts to larger or smaller units • Solves problems involving capacity in the customary system and converts to larger or smaller units*	• Solves real-world problems involving addition and subtraction of integers (analysis)* • Solves real-world problems involving multiplication and division of integers (analysis)* • Solves multiple-step problems involving proportions • Solves problems involving a fractional increase* • 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 simple interest rates without the formula • Solves problems with scientific notation* • Solves problems involving length in the metric system and converts to larger or smaller units* • 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* • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves problems involving measurement of angles* • Solves complex problems involving the measurement of angles* • Solves problems involving the perimeter of squares, rectangles, or triangles (analysis) • Solves perimeter problems comparing width and length • Solves problems involving area of a rectangle and converts to larger or smaller units (customary) • Solves problems involving area of a circle • Calculates the area of irregular shapes (metric units)* • Solves complex problems involving inscribed figures	• Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)* • Solves problems with scientific notation* • Solves complex real-world problems involving capacity* • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves complex problems involving the measurement of angles* • Solves problems involving complex figures (e.g., triangle, parallelogram)* • Solves complex problems involving inscribed figures • Solves real-world problems involving surface area* • Determines the surface area of a pyramid (customary units)* • Calculates the length of one side of a cube, given the volume (customary units)* • Calculates the radius of a sphere, given the volume and formula (metric units)* • Solves real-world problems comparing volumes of figures • Solves complex problems involving mean* • Applies algebraic methods to solve complex real-world and theoretical problems • Solves problems involving consecutive numbers* • Rewrites a complex formula to solve for a specific variable* • Uses graphs to solve systems of linear equations in real-world situations* • Solves real-world systems of linear equations*

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• Solves complex problems involving miles per gallon • Solves problems comparing unit prices • Solves problems involving the perimeter of irregular or complex shapes • Solves perimeter problems comparing width and length • Describes the change in perimeter when dimensions of an object are altered* • Solves simple problems involving the area of a square or rectangle • 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)* • Solves problems with missing data when the mean is known • Applies algebraic methods to solve real-world problems* • Solves problems involving simple functions* • Solves problems involving complex functions	• Calculates the length of one side of a cube, given the volume (customary units)* • Determines the effects of changing dimensions on volume (no units) • 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 graphs to solve systems of linear equations in real-world situations* • Solves problems involving complex functions	
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Uses equivalent representations to understand new mathematical content* • Uses pictures to represent problems* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Organizes information from a paragraph to solve a problem* • Analyzes complex problems to separate into simpler parts* • Verifies reasonableness of results of complex problems* • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*	• Uses equivalent representations to understand new mathematical content* • Uses algebraic representations to model and interpret mathematical and real-world situations* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Verifies reasonableness of results of complex problems* • Uses reasoning strategies to solve problems* • Identifies the converse or inverse of a conditional statement* • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*	• Uses equivalent representations to understand new mathematical content* • Uses algebraic representations to model and interpret mathematical and real-world situations* • Uses graphic representations to model and interpret mathematical and real-world situations* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Verifies reasonableness of results of complex problems* • Uses reasoning strategies to solve problems* • Constructs conditional statements (e.g., If..., then...)* • Draws a simple valid conclusion from a given if ... then statement and a minor premise* • Uses counterexamples to show that an assertion is false • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution

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		within the model, interpretation of solution within the model, validation in original real-world problem situation)*
New Vocabulary: commission, depreciate, discount, regression equation, representative sample, time-and-a-half	*New Vocabulary:* converse, feet per second, inscribe, linear foot, number sequence, point of intersection, quadrupled, rectangular area, semicircle, square kilometer, square yard	*New Vocabulary:* right pyramid, slant height
New Signs and Symbols: BC, f(x) the value of the function f at x, > greater than, ≥ greater than or equal to, km kilometer/kilometre, < less than, ≤ less than or equal to	*New Signs and Symbols:* ≈ approximately equal to, cubic centimeter/centimetre, ° degrees, L liter/litre, mL milliliter/millilitre, π pi, • point, right angle marker, sec second, square centimeter/centimetre	*New Signs and Symbols:* P perimeter, square root symbol, Δ triangle

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: 251 - 260

Skills and Concepts to Enhance 241 - 250	Skills and Concepts to Develop 251 - 260	Skills and Concepts to Introduce Above 260
Problem Solving	**Problem Solving**	**Problem Solving**
• Solves real-world problems involving addition and subtraction of integers (analysis)* • Solves real-world problems involving multiplication and division of integers (analysis)* • Solves multiple-step problems involving proportions • Solves problems involving a fractional increase* • 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 simple interest rates without the formula • Solves problems with scientific notation* • Solves problems involving length in the metric system and converts to larger or smaller units* • 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* • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves problems involving measurement of angles* • Solves complex problems involving the measurement of angles* • Solves problems involving the perimeter of squares, rectangles, or triangles (analysis) • Solves perimeter problems comparing width and length • Solves problems involving area of a rectangle and converts to larger or smaller units (customary) • Solves problems involving area of a circle • Calculates the area of irregular shapes (metric units)* • Solves complex problems involving inscribed figures	• Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)* • Solves problems with scientific notation* • Solves complex real-world problems involving capacity* • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves complex problems involving the measurement of angles* • Solves problems involving complex figures (e.g., triangle, parallelogram)* • Solves complex problems involving inscribed figures • Solves real-world problems involving surface area* • Determines the surface area of a pyramid (customary units)* • Calculates the length of one side of a cube, given the volume (customary units)* • Calculates the radius of a sphere, given the volume and formula (metric units)* • Solves real-world problems comparing volumes of figures • Solves complex problems involving mean* • Applies algebraic methods to solve complex real-world and theoretical problems • Solves problems involving consecutive numbers* • Rewrites a complex formula to solve for a specific variable* • Uses graphs to solve systems of linear equations in real-world situations* • Solves real-world systems of linear equations*	• Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves problems involving rates* • Solves complex problems comparing the areas of circles • Solves real-world problems involving surface area* • Analyzes a problem solving situation to determine the surface area of a cylinder (customary)* • Rewrites a complex formula to solve for a specific variable* • Solves real-world systems of linear equations*

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• Calculates the length of one side of a cube, given the volume (customary units)* • Determines the effects of changing dimensions on volume (no units) • 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 graphs to solve systems of linear equations in real-world situations* • Solves problems involving complex functions		
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**	**Communication, Connections, Reasoning**
• Uses equivalent representations to understand new mathematical content* • Uses algebraic representations to model and interpret mathematical and real-world situations* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Verifies reasonableness of results of complex problems* • Uses reasoning strategies to solve problems* • Identifies the converse or inverse of a conditional statement* • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*	• Uses equivalent representations to understand new mathematical content* • Uses algebraic representations to model and interpret mathematical and real-world situations* • Uses graphic representations to model and interpret mathematical and real-world situations* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Verifies reasonableness of results of complex problems* • Uses reasoning strategies to solve problems* • Constructs conditional statements (e.g., If..., then...)* • Draws a simple valid conclusion from a given if ... then statement and a minor premise* • Uses counterexamples to show that an assertion is false • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*	• Uses technology to organize, record, and communicate mathematical ideas* • Identifies the contrapositive of a conditional statement*
New Vocabulary: converse, feet per second, inscribe, linear foot, number sequence, point of intersection, quadrupled, rectangular area, semicircle, square kilometer, square yard	*New Vocabulary:* right pyramid, slant height	*New Vocabulary:* none
New Signs and Symbols: ≈ approximately equal to, cubic centimeter/centimetre, ° degrees, L liter/litre, mL milliliter/millilitre, π pi, • point, right angle marker, sec	*New Signs and Symbols:* P perimeter, square root symbol, Δ triangle	*New Signs and Symbols:* sq in. square inch

* 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.

second, square centimeter/centimetre		

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Subject: Mathematics
Goal Strand: Mathematical Processes
RIT Score Range: Above 260

Skills and Concepts to Enhance 251 - 260	Skills and Concepts to Develop Above 260
Problem Solving	**Problem Solving**
• Solves problems involving complex percent discounts (e.g., finding percent discount, regular price)* • Solves problems with scientific notation* • Solves complex real-world problems involving capacity* • Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves complex problems involving the measurement of angles* • Solves problems involving complex figures (e.g., triangle, parallelogram)* • Solves complex problems involving inscribed figures • Solves real-world problems involving surface area* • Determines the surface area of a pyramid (customary units)* • Calculates the length of one side of a cube, given the volume (customary units)* • Calculates the radius of a sphere, given the volume and formula (metric units)* • Solves real-world problems comparing volumes of figures • Solves complex problems involving mean* • Applies algebraic methods to solve complex real-world and theoretical problems • Solves problems involving consecutive numbers* • Rewrites a complex formula to solve for a specific variable* • Uses graphs to solve systems of linear equations in real-world situations* • Solves real-world systems of linear equations*	• Solves problems involving rate conversions (e.g., mi/hr to ft/sec)* • Solves problems involving rates* • Solves complex problems comparing the areas of circles • Solves real-world problems involving surface area* • Analyzes a problem solving situation to determine the surface area of a cylinder (customary)* • Rewrites a complex formula to solve for a specific variable* • Solves real-world systems of linear equations*
Communication, Connections, Reasoning	**Communication, Connections, Reasoning**
• Uses equivalent representations to understand new mathematical content* • Uses algebraic representations to model and interpret mathematical and real-world situations*	• Uses technology to organize, record, and communicate mathematical ideas* • Identifies the contrapositive of a conditional statement*

* 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.

• Uses graphic representations to model and interpret mathematical and real-world situations* • Applies the most appropriate problem solving strategies (e.g., draws a picture, looks for patterns, makes a table or organized list, makes a problem simpler, uses process of elimination, uses trial and error, works backwards, uses models)* • Uses technology to organize, record, and communicate mathematical ideas* • Verifies reasonableness of results of complex problems* • Uses reasoning strategies to solve problems* • Constructs conditional statements (e.g., If..., then...)* • Draws a simple valid conclusion from a given if ... then statement and a minor premise* • Uses counterexamples to show that an assertion is false • Uses the components of mathematical modeling (e.g., problem formulation, mathematical model, solution within the model, interpretation of solution within the model, validation in original real-world problem situation)*	
New Vocabulary: right pyramid, slant height	*New Vocabulary:* none
New Signs and Symbols: P perimeter, square root symbol, Δ triangle	*New Signs and Symbols:* sq in. square inch

* Both data from test items and review by NWEA curriculum specialists are used to place learning continuum statements into appropriate RIT ranges.
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